The Magazine For Hewlett-Packard Enterprise Computing

Professional

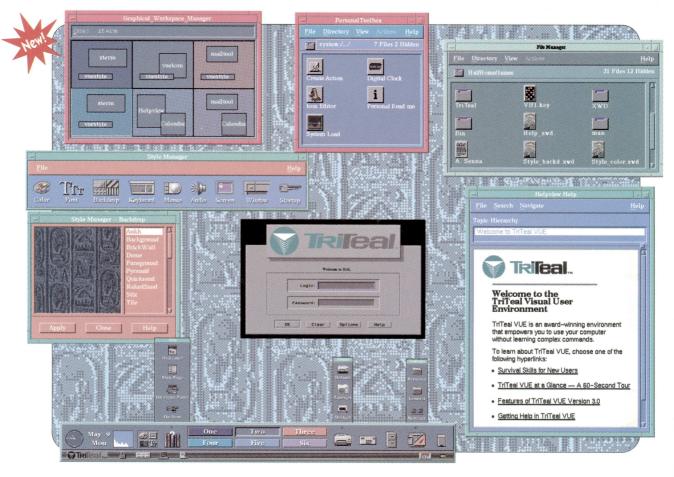
- E-MAIL DELIVERS
  CLIENT-SERVER PACKAGE
- NETWORK PRINTINGGETS REAL
- PC TIPS: MICROSOFT HITS THE ROAD WITH A TRIO OF OPERATING SYSTEMS



EDI BREAKS THE ICE

## The COSE Common Desktop Environment IS coming!

## So why wait? Get it NOW!



CDE 1.0 should be available from the major platform vendors *sometime* within the next 12 months.

But you can realize all of the benefits of a Common Desktop Environment today with TriTeal VUE 3.0.

Based on Hewlett-Packard's Visual User Environment (VUE) which is the nucleus of the COSE CDE effort, TriTeal VUE offers the following benefits:

- Login Manager provides an easy and secure way to log in to your workstation without any knowledge.
- Session Manager preserves your workspace context between sessions and automatically restores all aspects of the environment upon reentry.
- Workspace Manager provides a "Virtual Desktop" to help manage multiple projects and activities simultaneously. Users can organize their desktop into different workspaces for different tasks.
- Style Manager customizes your environment at the click of a button. Menus, slider bars, and buttons allow you to dynamically select colors, background patterns, and fonts.

- File Manager uses icons and drag-and-drop style manipulation to organize your application and datafiles.
- Help Manager offers a context sensitive, hypertext help at the click of a button, from any point and any level within the TriTeal VUE environment.

Graphical Workspace Manager (GWM) visually monitors and navigates through multiple desktops simultaneously. Application icons representing programs running within a given workspace can be dragged into any other workspace.

TriTeal VUE is available now for SunOS, Solaris™ and AIX based platforms, exclusively from Artecon and Artecon's strategic partners - SunExpress, Sun Federal, Merisel, GTSI, and Access Graphics.

And at only \$350 for a single copy license\*, why wait any longer? Join the thousands of users who are enjoying all of the benefits of CDE today with TriTeal VUE.

\*Call for multiple seat RTU pricing.

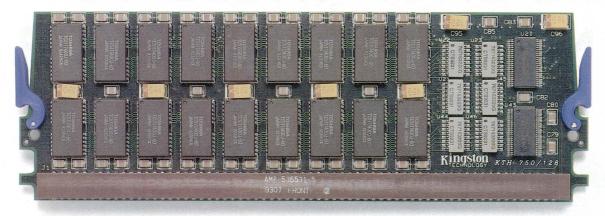
1-800-USA-ARTE

Enterprising solutions for your enterprise.™



PO Box 9000, Carlsbad, CA 92018-9000 (619)931-5500 FAX (619) 931-5527 email: sales@artecon.com A Member of the Nordic Group of Companies

**CIRCLE 242 ON READER CARD** 



Now Shipping! HP/Apollo Series 9000 Model 750, 755 Memory

KTH 750/128 32, 64, 128MB

## The HP Memory To Remember



#### Hewlett-Packard Memory Enhancements

Kingston's HP and HP/Apollo memory enhancements lead



#### Guaranteed Compatibility

As a Hewlett-Packard Channel Partner, we guarantee absolute compatibility of our memory upgrades with HP and HP/Apollo systems. We test every memory

upgrade with HP's own
system diagnostics and
operating system.

Our memory
upgrades are so
compatible that
Hewlett-Packard itself is
a regular customer!

HP/Apollo Memory HP 3000 Business Systems 16MB, 32MB and 9X7 Series 64MB kits HP/Apollo 9000 4MB, 8MB, 16MB and 400 Series 32MB kits HP/Apollo 9000 1MB, 2MB, 4MB and 700/RXstations 8MB modules HP/Apollo 9000 8MB, 16MB, 32MB, 700 Series 64MB and 128MB kits HP 9000 Business Servers 16MB, 32MB, 64MB and 8X7 Series 128MB kits

Kingston has a full line of memory and storage upgrades for most popular HP and HP/Apollo workstations. With new products being announced every week at Kingston, give us a call for our latest offerings.

#### Kingston Storage Products

Having built our business around high quality computer memory, we've gone the next step and

developed a solid family of
storage products. Whether you
need internal or external, fixed
or removable storage solutions,
Kingston bas the reliable
products for your system.

#### For More Information

Call our workstation memory experts at



about our memory upgrades for Hewlett-Packard, Data General, Digital Equipment, IBM, NeXT, Silicon Grapbics, Solbourne, Sun and other popular workstation manufacturers.

#### Kingston Makes Memory For Workstations From These Manufacturers:

 $\bullet HP$ 

 $\bullet IBM$ 

•Data General

 $\bullet NeXT$ 

•Digital Equipment •Silicon Graphics

•Sun

•Solbourne

 $\bullet NCD$ 

Tektronix



## LIE BACK WHILE YOUR NETWORK BACKS UP.



Now, you can relax with IEM and Alexandria. Alexandria is designed to supervise every facet of your UNIX network backup. So, while you are taking it easy, Alexandria will:

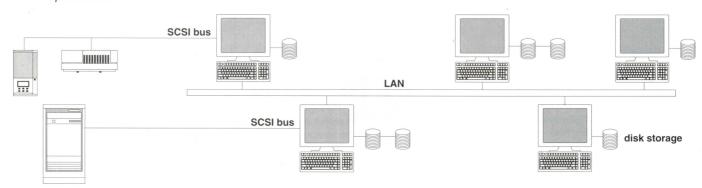
- Work 24 hours a day, 7 days a week, and never take vacation.
- Organize and automate your system backups and archives.
- Manage all of your backup media including optical.
- Back up your entire network even if it consists of several UNIX platforms.
- Work with IEM's 4mm and 8mm carousels and autofeeders as well as HP's optical libraries.

Backup Devices Drives, Autofeeders, and Jukeboxes

- 4mm tape
- 8mm tape
- 3480 tape
- Optical disk

Alexandria Servers
HP 9000 700/800
and non-HP
UNIX-based machines

Alexandria Clients HP 9000 300/ 400/ 700/ 800 and non-HP UNIX-based machines



IEM specializes in HP-compatible solutions. For more information on IEM products, please contact us at one of the numbers below.



In the U.S. and Canada: IEM, Inc., P.O. Box 1889 Fort Collins, CO 80522 USA Phone: (1) 303-221-3005

> (1) 800-321-4671 (1) 303-221-1909

In the United Kingdom:
IEM Europe, Ltd., Colorado House,
Cromwell Park, Banbury Road,
Chipping Norton, Oxfordshire OX7 5SR
Phone: +(44) 608 645000

Phone: +(44) 608 645000 Fax: +(44) 608 645155 All Others
IEM International Sales
1629 Blue Spruce Drive
Fort Collins, CO 80524 USA
Phone: +(1) 303-221-3005
Fax: +(1) 303-221-1909

## August Vol 8 No. 5

1994

Letters To The Editor ...... 12

Industry Watch .....8

New Products ..... 54

Reader Information ............ 65

Advertiser Index ......71

Vol. 8, No. 8

#### EDI Graduates To The Internet

24

By Trevor Richards

As the world moves toward electronic commerce, the Internet backbone is increasingly connected to the business of business.

#### The Reality Of Network Printing

30

By Bill Sharp

Network printing brings interoperability nightmares into the daylight. Someday soon, if HP has their way, you'll lose your keys more often than your print jobs.

#### Make The Right Connections With E-mail

34

By George A. Thompson

As the first pipeline of distributed computing, E-mail takes your business enterprise-wide.

#### (OLUMNS

#### PC Tips: The Winds Of Change

By Miles B. Kehoe

Daytona, Chicago and Cairo Releases Increase Windows Functionality. 40

#### Networking: Pave The Way To PC Integration

By Tim Cahoon

#### UNIX SYS ADMIN: Some Of This And Some Of That

By Fred Mallett

Some Tidbits From The 1994 InterWorks HP Workstation User Group Annual Conference. **48** 

#### Objectively Speaking: Defining The Objectives

By Richard Riehle

#### And Another Thing: Why Not RISC It?

By Gordon McLachlan

### PRODUCT WATCH: Proactive's FANTASIA

|   |   | _  | -  |    | - |   | _  | _ |   |    |    | -  |   | • |      | <br> | • | • | ľ |
|---|---|----|----|----|---|---|----|---|---|----|----|----|---|---|------|------|---|---|---|
| - | 1 | 10 | da | at | a | C | o' | S | L | _i | kϵ | er | 1 |   | <br> | <br> |   | ١ | 6 |

14

#### Carolian's Syspak ...... 18

#### STRATEGIC DIRECTIONS:

| Γivoli Systems | Inc. | 20 |
|----------------|------|----|
|                |      |    |





Cover Photo by Andy Caulfield/ The Image Bank

## Introducing NETWORK PRINTING VIA NLM

### **NP92**

MiniSoft introduces the most efficient software solution on the market for directing HP3000 spoolfiles to network printers. NP92 may be implemented as an NLM to append spoolfiles to Novell print queues, or operate as a background task on the HP3000 and transparently spool output to network print destinations.

- Spoolfiles and reports printed directly on TCP/IP linked printers.
- Supports all major LAN cards.
- Supports Novell, LAN Manager, Banyan and Unix.
- Bi-directional printing.
- Prices start at \$995.



### MINISOFT

MiniSoft Inc. 312 Maple Street Snohomish WA 98290 FAX 206/568-2923 800/682-0200 Banhofstrasse 46 CH-6048 Horw, Switzerland +41/41.47.2320 FAX +41/41.47.3866

NP92 is a registered trademark of MiniSoft Inc. All other trademarks are the property of their respective owners.

#### **CIRCLE 472 ON READER CARD**

UNIX is a registered trademark of AT&T in the U.S.A. and in other countries.

MS-DOS is a trademark of Microsoft Corp.

Macintosh is a trademark of Apple Computer Inc.

X Window System is a trademark of MIT.

Windows is a registered trademark of Microsoft Corp.

Windows NT is a registered trademark of Microsoft Corp.

NetWare is a registered trademark of Novell Inc.



EDITOR-IN-CHIEF Charlie Simpson
TECHNICAL EDITOR George A. Thompson
ASSISTANT EDITOR Deborah Schwartz

TECHNICAL EDITOR Bill Sharp
APOLLO EDITOR Fred Mallett
HP 3000 EDITOR John P. Burke
NETWORKING EDITOR Tim Cahoon
PC/UNIX EDITOR Miles B. Kehoe
SOFTWARE ENGINEERING EDITOR Richard Riehle
CONTRIBUTING EDITOR Gordon McLachlan
CONTRIBUTORS Sam Dickey, Trevor Richards
EXECUTIVE CONSULTANT Carl B. Marbach

TECHNICAL SERVICES

DIRECTOR OF TECHNICAL SERVICES David B. Miller

DESIGN & PRODUCTION

EXECUTIVE DESIGN DIRECTOR Leslie A. Caruso
ART DIRECTOR Al Feuerstein

ASSOCIATE ART DIRECTOR Jennifer Barlow
DESIGNER Patty Wall

PRODUCTION MANAGER Bill Hallman

#### CIRCULATION

CIRCULATION MANAGER Ron Langmacher
DIRECTOR OF FULFILLMENT Marjorie Pitrone
CIRCULATION CONSULTANT Carrie Eisenhandler
CIRCULATION COORDINATOR Bonnie Fetzer

#### MARKETING

PROMOTIONS DIRECTOR Timothy M. Kraft
MARKETING MANAGER Gloria Goodwin
SENIOR GRAPHIC DESIGNER Thomas Owen
GRAPHIC DESIGNER Mark Broomell

PUBLISHER Leslie Ringe

#### CARDINAL BUSINESS MEDIA, INC.

PRESIDENT AND CHIEF EXECUTIVE OFFICER: Robert N. Boucher

VICE PRESIDENT & CHIEF OPERATING OFFICER
James S. Povec

VICE PRESIDENT & CHIEF FINANCIAL OFFICER Thomas C. Breslin

VICE PRESIDENT, PUBLISHING SERVICES
R. Patricia Herron

DIRECTOR OF HUMAN RESOURCES Carolyn J. Head CONTROLLER Andrew D. Landis

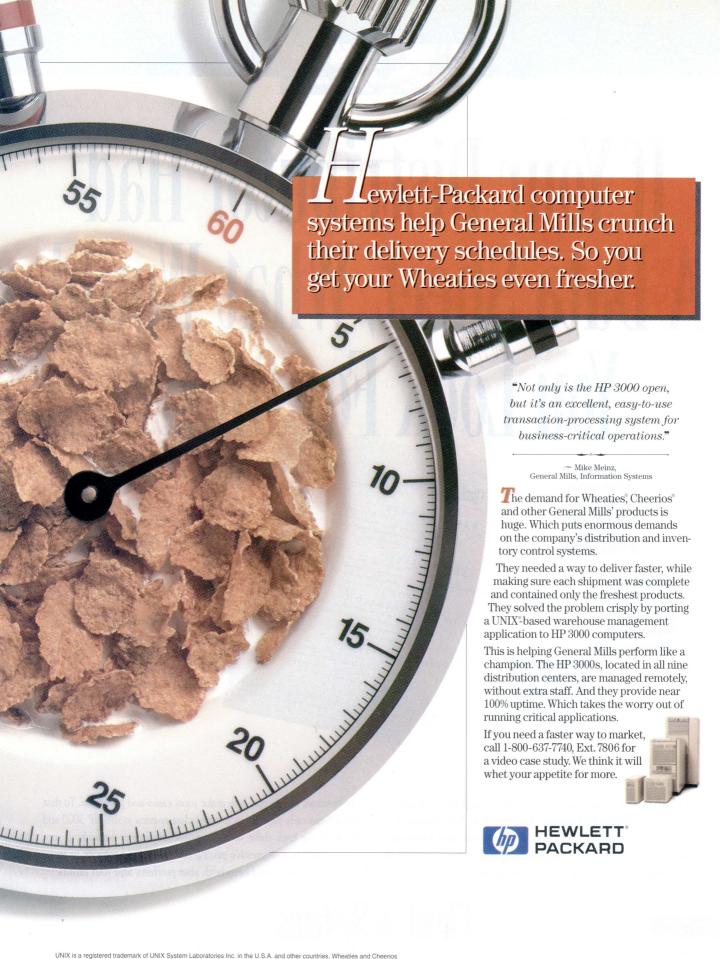
For more information on how to contact your sales representative, see page 71. For address changes or other subscription information please call (708) 564-1385 or FAX (708) 564-9002. Editorial, advertising sales and executive offices at 1300 Virginia Dr., Ste. 400, Fort Washington, PA 19034 ■ (215) 643-8000 Corporate FAX (215) 643-8099. To reach staff listed on masthead via UUNET, send MAIL to: LAST NAME@ CARDINAL.COM

HP PROFESSIONAL ISSN 0896-145X is published monthly by Cardinal Business Media Inc., 1300 Virginia Dr., Ste. 400, Fort Washington, PA, 19034. Subscriptions are complimentary for qualified U.S. and Canadian sites. For reprints, contact Reprint Management Services, 505 E. Airport R.d., Lancaster, PA 17601; (717) 560-2001, Fax (717) 560-2023. Second Class postage paid at Fort Washington, PA 19034, and additional mailing offices. POST-MASTER: Send all correspondence and address changes to HP PROFESSIONAL P.O. Box 3052, Northbrook, II. 60062. COPYRIGHT ⊚ 1993 by Cardinal Business Media Inc. All rights reserved. No part of this publication may be reproduced in any form without written permission from the publisher. All submitted manuscripts, photographs and/or artwork are sent to Cardinal Business Media, Inc. at the sole risk of the sender. Neither Cardinal Business Media, Inc. or HP PROFESSIONAL magazine is responsible for any loss or damage. HP PROFESSIONAL is an independent journal not affiliated with Hewlett-Packard Company. HP and Hewlett-Packard are registered trademarks and HP PROFESSIONAL is a trademark of Hewlett-Packard Company.

Canada Post International Publication Mail (Canadian Distribution Sales Agreement # IPM0264431

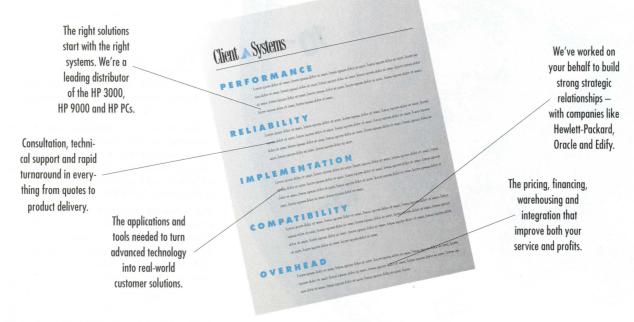
Printed in U.S.A.







## If Your Distributor Had A Data Sheet, What Would You Look For On It?



At Client Systems, you can count on us to help turn advanced technology into real-world business solutions. We're here for one reason – to support the VARs, Integrators and Reengineering Consultants committed to delivering the advantages of high-value systems and a full spectrum of proven client-server software and tools.

Our business, simply put, is to make yours easier and profitable. To that end, we not only provide such world-class systems as the HP 3000 and HP 9000, we back them with the full-scale service, networking support, consultation, aggressive pricing and financing necessary to make sure you close deals and keep both your promises and your profits.





## The Experts Are On Board

#### HP Professional Introduces Editorial Advisory Board

I am proud to announce the establishment of *HP Professional*'s first Editorial Advisory Board. The Advisory Board's mission is to help us better serve you. The Board will expand our coverage of the market, evaluate our editorial focus, help us establish contacts and contribute topics for future articles.

The charter Editorial Advisory Board members are:

Patrick A. Adamiak, HP 3000 Product Marketing Manager. Mr. Adamiak is responsible for the marketing of the HP 3000 systems and software including databases, networking and system management. Mr. Adamiak will help us deliver insights into the future of the HP 3000 and how it fits into your enterprise network.

Nigel Ball, Marketing Manager for HP's General Systems Division, and former Systems Marketing Manager of HP's Computer Systems Business in Europe. In addition to supplying information on the HP 9000 strategies, one of the hottest growing markets in computing, Mr. Ball will help us provide you with a look at what's happening in the European community.

John G. Jazwiec, CIO at Barber Coleman. Mr. Jazwiec is responsible for maintaining and developing all information system strategies for Barber Coleman worldwide. The systems Mr. Jazwiec oversees include: HP 3000, HP 9000 and HP workstations, DEC, Stratus, Tandem and IBM midrange. Networks include Novell, Banyan, LAN Manager TCP/IP, DECNet, AppleTalk, Token Ring, SNA, X.25 and Frame Relay.

*John R. Logan*, Vice President and Co-founder of the Aberdeen Group Inc. Mr. Logan is one of the nation's leading analysts of trends in the computer industry and one of the most influential HP watchers. He consults with senior executives of major enterprises on implementing information systems.

Michael J. Meinz, Principal Technical Consultant at General Mills Inc. With over 27 years at General Mills, Mr. Meinz develops and guides technology strategies while organizing research projects. He is responsible for HP 3000 and HP 9000 systems as well as Unisys, Amdahl, Windows NT, Windows for Workgroups, OS/2 and LAN Manager.

Glenn Osaka, General Manager of HP's Professional Services Organization (PSO). A familiar face and name throughout the HP industry, Mr. Osaka, former GM of the Commercial Systems and Cooperative Computing Systems Divisions, was recently appointed the General Manager of PSO, HP's CSO consulting and systems integration branch. Mr. Osaka brings to our board over 15 years of HP computer experience, including the strategic business planning for HP-UX, MPE/iX and HP's open-systems initiative.

Bard F. White, CIO and Worldwide Director of MIS for Spalding Sports Worldwide. Mr. White is responsible for worldwide information services at Spalding such as computer programming, analysis, data center operations and telecommunications, including telephones and faxes, mail room, copy centers and data security.

I'm sure you agree this is an impressive group. But what do they mean to us? Information, information and yes, more information. And we plan to translate this increased knowledge into improved coverage of HP and the information industry.

Our Board members will provide the necessary insight into HP's products and strategies that you need for your own strategic decisions. As *HP Professional* continues toward being the most informative publication focusing on the HP market, this Editorial Advisory Board moves us further in that direction.



By Charlie Simpson

Charlie Simpson

## Create-Your-Own Growth

## recent study of corporate needs reports rapidly

falling costs for recording CD-ROMs is producing rapid growth in the CD-Recordable (CD-R) market. According to market research conducted by High Tech Ventures (St. Paul, Minn.), CD-R units will expand from 42,000 in 1993 to 180,000 in 1994, and 1.5 million in 1995.

The reason for such rapid growth is the ability, using CD-R equipment, to create your own CD-ROMs, including audio and multimedia data, for replay on standard CD-ROM drives. With 6 million CD-ROM drives up and running worldwide, and many more selling, opportunities to make good use of CDs are rapidly improving at the same time that the cost of producing CDs is plummeting.

Costs for adding a CD-ROM drive to your system now range from about \$150 to \$475, with thousands of CD-ROM titles available to run on them. Moreover, the number of companies either currently producing their own CD-ROMs or planning to do so is very high. Most large companies have plans to produce CD-ROMs during the coming months, at least for internal use. These range from annual reports to market information and customer presentations.

According to the study, five years ago

a CD-recordable system cost more than \$100,000, and by three years ago that cost dropped to \$20,000. Today, similar equipment costs \$3,000 to \$10,000 and is available from a number of companies.

#### TISC, TISC FROM HP

Telecommunications solutions are the focus of a new facility opened by HP. Because telecommunications is a large vertical market for HP, they formed a dedicated center to provide help with prototyping, integration and demonstration assistance for the telecom industry.

The Telecommunications Industry Solutions Center (TISC) will provide its help in addition to the consulting, systems integration and education programs already underway from HP's Professional Services Organization (PSO). The Center provides assistance for planning, design and testing individual telecommunications user solutions.

PSO will use the center to help customers in technology areas including intelligent networking, broadband for cable and video, distributed object technology and network management tools. HP expects its telecommunications industry partners and customers to use the center to design, configure and test new telecommunications products and services.

Telecommunications firms have worked with HP to improve billing systems, customer care systems and network management platforms. HP's telecommunications customers include NEXTEL, DGT, AT&T, Bell South, GTE, McCaw Communications, Pacific Telesis, U.S.



**Any card.** The memory you need is in stock, tested and ready to go. Order today. Upgrade your system tomorrow.

You'll get the quality and service you expect from the leader in HP workstation enhancements. We specialize in HP, it's the platform we know best.

Newport Digital TURBO cards and memory products are guaranteed to meet or beat HP quality standards. Every card we ship has been rigorously tested in a fully functional workstation, just like yours.

**Risk free.** Our total quality program gives us the confidence to offer an unconditional lifetime warranty. If one of our products fails, we'll ship a replacement by overnight express. We'll do anything we can to keep your workstation working.

**Call Today.** Speak with an expert on Hewlett-Packard computers. We'll make sure you get the cards you need.

Evaluate any of our memory products for 30 days. If you're not completely satisfied, return it without obligation.

#### **NEWPORT DIGITAL** 1-800-383-3642

West, Australia Telecom, Finnish PTT, Telia and Telemex.

#### RAISING THEIR VOICES

Telecom companies developing and deploying new voice interaction services have more help from HP thanks to an intelligent peripherals (IP) platform.

The goal of the new platform is to provide a consistent delivery vehicle for development of multiple voice capabilities including announcement playing, speech recognition, text-to-speech conversion, fax store and fax forward. By defining the platform, which will be used for the design, simulation and deployment of the new services, HP makes it easier for telecommunications vendors to predict performance of new services before deployment.

HP's IP platform includes two components; a voice processing front-end client

and an application server. The voice processing system is an HP-UX PA-RISC computer. It manages network interfaces and does voice processing. It can range from 24 to thousands of ports.

The IP application server also is an HP-UX PA-RISC computer that runs service logic programs, communicates with the voice processing client through a TCP/IP link over LAN or FDDI. If only a small number of ports are needed, the voice processing and server systems can reside in the same system. Prices begin at about \$90,000, and will be available this fall.

#### WHEN YOU'RE HOT ...

HP's stream of embarrassingly good quarters continues on. Orders increased 19 percent and net earnings rose 18 percent for the second period of the corporate fiscal year, from February through April 1994. Total sales for the quarter were \$6.4 billion, up a billion dollars from the same quarter last year. Among the highlights:

- Orders for the new low-price Vectra VL PCs and new DeskJet models 520 and 560C grew dramatically.
- HP 9000 Series 800 servers and multiuser systems continued strong growth.
- Workstation unit shipments grew, particularly on the low and high ends where the Model 712 and 735/125 got attention, but overall workstation sales declined compared with a year ago.
- Consulting services and HP OpenView network and system software had an excellent quarter.
- Mass storage grew strongly.

Sales for the first half of the fiscal year totaled \$12.5 billion which puts HP on track to become a \$25-billion corporation for fiscal 1994.

#### UNIFACE SIX AT YOUR SERVICE

Uniface introduced the latest version of its client-server development environment, Uniface Six. This version includes a model-driven approach, object-based environment, team development facilities and technology-independent deployment. Various components share a central application objects repository. Uniface Six will be available first for Windows 3.1, and later this year for Motif, OS/2 and Macintosh platforms.

—Sharp's Internet address: sharp@cardinal.com



Workstation Rentals for Business

## Need To Rent A Workstation For A Short-Term Project?

- Cost-effective rental of newest Sun, HP and Tadpole workstations:
  - Sun SPARCstation 20
  - Sun SPARCstation 10
  - Sun SPARCstation 5
  - Tadpole SPARCbook 3
  - Tadpole SPARCbook 2
- HP Model 735/125 CRX
- HP Model 735 CRX 24Z
- HP Model 735 CRX
- HP Model 715/75
- HP Envizex X-Station
- Plus many others!
- Large inventory Fast delivery
- Flexible rental and leasing options Rent-To-Own
- Major credit cards accepted

#### Call 1-800-GE-RENTS!

Authorized Rental Company for:

HEWLETT®
PACKARD

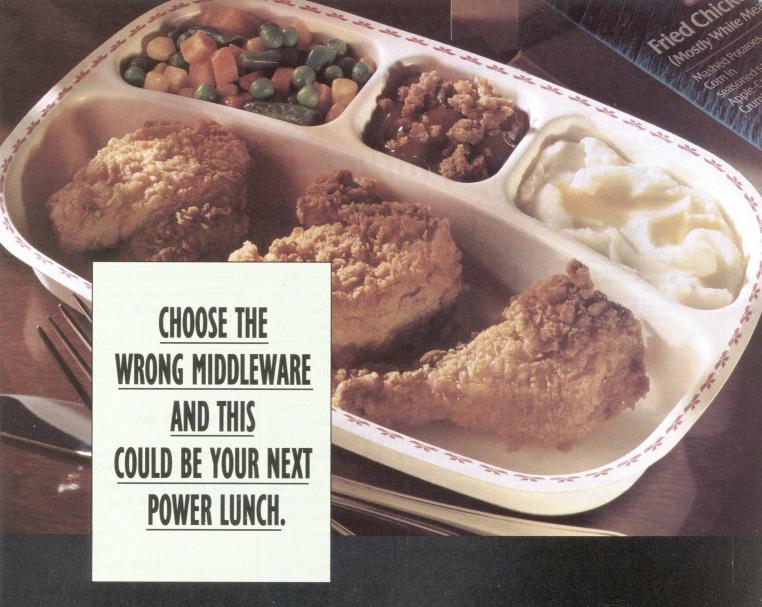
Sun Microsystems
Computer Corporation











Although there's a growing number of vendors who claim that they provide middleware solutions, choosing the wrong one could have disastrous results for you and your company.

Other vendors provide limited solutions while only **EDA/SQL**<sup>™</sup> from Information Builders gives you middleware with the flexibility to set your own standards for true open client/server computing. And **EDA/SQL** guarantees transparent SQL access to virtually any database, both relational and legacy, across more than 35 platforms.

This means that you can configure a client/server architecture the way you want, join the data files you need and deliver clean, accurate data to your workstation or server. And our new **Smartmode**™ technology lets you control runaway queries before they drive the

costs of running applications through the roof.

Bottom line? **EDA/SQL** gives you the freedom to design systems that deliver accurate data to the managers who need it, no matter what form it's in or where it resides. All with an unbeatable price/performance ratio. No wonder more than 500 customers already enjoy unparalleled success with their client/server implementations.

So before you make a decision that's "out to lunch", chew on this. **EDA/SQL**...it's your only choice.

For more information, to attend a FREE seminar or to receive a FREE White Paper, "Migrating to Client/Server - A Case for Middleware"...

#### **CALL 800-969-INFO**

In Canada Call 416-364-2760



"There's no middle ground on middleware"

Information Builders

#### THE TOTAL SOLUTION

#### sales, service, support

- On-time service, on-line equipment—backed by the GE name.
  Black River takes the risk and worry out of ordering, implementation and maintenance. You're assured:
  - Full line of new and previously owned, refurbished 9000, 3000 and 1000
  - Technically trained maintenance team.
  - Free installation with GE
  - maintenance package.

    Nationwide service backed

Call 216-365-9950 or fax 216-365-3916 for more information.



THE TOTAL SOLUTION sales, service, support

7630 RACE ROAD • NORTH RIDGEVILLE, OHIO 44039 216-365-9950

**CIRCLE 171 ON READER CARD** 



Professional is different from other HP publications because it provides me with higher level information and that's important."

> James Burton, IS Manager Boise Cascade



#### LETTERS TO THE EDITOR

## Another View Of Open View

I just got around to reading the [May 1994 issue] and was glad to see [Tim Cahoon's] article regarding OpenView. We have OpenView Node Manager/UX but need to move to OpenView Interconnect Manager so that we can put passwords on our HP hubs (did I hear the word standard?).

I have had a struggle getting information on the exact differences between the Win version and the UX version as I am trying to decide which platform to use. Even with upgrade pricing, the Win version would be cheaper to buy. I did find the 1,000 node cut-over very interesting because the HP people I've talked to keep pushing the UX version for managing more than a couple of hubs. The other thing they keep saying is that the Win version has less features, but nobody seems to be able to explicitly state what features the UX version has over Windows.

I was also glad to hear something about the NT version as another possibility. It is frustrating that HP doesn't have demos available, although I've heard that they may be working on it.

Thanks again for the article.

Tony Wyland Network Manager Messiah College

#### MOBILE COMPUTING

I just read [George A. Thompson's] recent article on mobile computing in the June 1994 issue. Having just bought an Apple Newton MessagePad 110 a week or so ago, I was especially interested in the piece. Using a pen-based interface seemed

so much more natural to me — after I got the recognizer somewhat trained. Although it took a while, it does WORK!

> Gerry Van Zandt Associate Cunningham Communications

#### STATE OF THE HP 3000

In response to Charlie Simpson's June 1994 editorial: The HP 3000, Long May It Live. I have two 949s and a 987. What can't they do? I'm sticking with them.

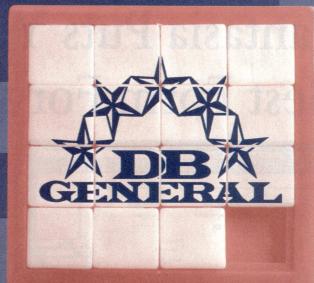
Svend Andersen Manager of MIS Health Plan of San Mateo

HP Professional welcomes comments from its readers. Letters may be edited for brevity and clarity, and should be addressed to: HP Professional, 1300 Virginia Dr., Ste 400, Fort Washington, PA 19034. Fax number: (215) 634-4827. Internet address for staff listed on the masthead:

LASTNAME @ CARDINAL. COM Please include a phone number for verification.

## Watch DBGENERAL's Disk Space Management





## solve your disk puzzle!

#### **Introducing DBGENERAL Option 9.1!**

Your need to take the puzzle out of disk space management has now been solved with the many powerful capabilities in DBGENERAL's new Option 9.1.

DBGENERAL: The Database Console™ continues to be the most complete data management utility available for the HP3000.

Call today! 1-800-ASK-BRAD

- Defragment your disk ON-LINE! (No system DOWN-TIME!!)
- Control your file locations, hence improving performance!
- Regain wasted sectors... and free up as much as 30% disk space!
- Relax! All functions are tied to MPE/iX Transaction Manager, ensuring complete data integrity!

**CIRCLE 108 ON READER CARD OR CALL** 1-800-925-1786 CODE 1115 FOR FAX ON DEMAND



DBGENERAL Option 9.1 is copywrited by SolutionSoft Systems, All Rights Reserved, 1994

ENGLAND BRADMARK UK Ltd. (+44) 905-795444

Facer Info. Design BELGIUM

Teamco Data A/S

(61) 2.484.3979

(32) 03.237.7906 (32) 56.41.83.99 (45) 75.92.5366

FRANCE ARES HP Consultants
GERMANY JF Infosys GmbH SWS Software GmbH

(33) 1.69.86.6000 (30) 1.777.0561

(49) 89.6088.2074 (49) 6722.6046 (49) 7621.78041

(972) 3.534.8967

Infosistemas Finacieros (525) 813.1305 NETHERLANDS

Info-Tech Computer

Quant Systems Europe (31) 2518.59105 Teamco Datasoft AS

(47) 22.62.72.00 Saudi Info. Technology (966) 1.477.4555

(65) 737.4161

SWEDEN Ole Nord AB Teamco Nardata Siamrica Company Ltd. (66) 2.238.4143 Hewlong Info. Corp. (886) 2.545.2166 WEST MALAYSIA

SWS Software Sys

(41) 31.981.0666

(46) 8.623.0050 (46) 9-103-6480

(60) 3.256.1911

## Fantasia Puts Your Best Form Forward



#### FANTASIA

- Comprehensive laser printing solution for MPE and UNIX systems
- Supports bar code printing, graphics and text merging
- Standalone DOS or Microsoft Windows forms design package generates overlay forms, one-off form masters and fill-in-the-blanks forms

#### **Proactive Systems**

Four Main St. Los Altos, CA 94022 tel: (415) 949-9100 fax: (415) 949-9111

CIRCLE 354 ON READER CARD

re-printed forms are the bane of any MIS organization: when to order more, how many to order, the wasted forms for alignment, headers, trailers and reprints, the storage costs and the operator costs for loading, bursting, collating and distributing.

These problems all vanish with FANTASIA from Proactive Systems (Los Altos, Calif.), a comprehensive, integrated solution for electronic forms, text, bar code and graphics printing on MPE and UNIX systems. FANTASIA's electronic forms allow users to merge data, print when and where you want to, integrate text, graphics and signatures, as well as print to any PCL-compatible laser printer.

The FANTASIA Server package contains a formatter, a TDP-like editor, a PC-based form design and maintenance system and support utilities.

The FANTASIA Formatter processes text and formatting commands to produce high-quality output on LaserJet (or compatible) printers. It can be driven from normal application programs to enhance the quality of all printed output, to include graphics with text in reports and to replace expensive pre-printed forms. FANTASIA also supports special printing applications such as bar codes, MICR for check printing, OCR and condensed printing.

A graphic command language is provided for sophisticated applications. The Formatter can be used to draw line, bar and pie charts. Graphics can be imported from PC software programs and incorporated into a document. FANTASIA lets you produce high volume reports, such as catalogs and parts lists, with a professioanl typeset appearance.

A new Field Fill capability lets users design the form, including fonts and justification. Then with the user's programs — 3GL or 4GL — simply specify the field with the data. The traditional merge overlay approach requires programming changes if the position of the data changes. Field Fill eliminates re-programming.

FANTASIA supports automatic pick-up, formatting and

routing of spooled printer output from existing applications. Printer files normally associated with pre-printed forms can have a FANTASIA form applied and rerouted to a laser printer. FANTASIA automatically scans the output queue for such files. \$STDLISTs, for example, can be trapped to print two- or four-up to save paper.

FANTASIA PC — the DOS or Microsoft Windows version - enables users to design and produce invoices, purchase orders, expense reports or statements, using a WYSIWYG design. The completed form is then printed as a master or stored for later editing and printing. Forms can be uploaded to an HP 3000 or UNIX system, or downloaded to a LaserJet to be merged with data from PC software. A form can even be "filled in" by the user on-screen and then printed locally. Data fields entered in this way can have their attributes specified (for example, length whether character or numeric) so that validation is performed.

FANTASIA is available for the HP 3000 (MPE V and MPE/iX) and many UNIX systems (including HP-UX). Forms can be moved between platforms. Prices for the complete system range from \$2,500 to \$17,000 depending upon system size.

—John P. Burke, HP 3000 Editor

# MANUBERSUNG.

### We Finally Figured Out What Wabi Means.

| C   | oftWindows   | Wabi     |
|---|--|----------|
| Number of compatible applications you can run     | Thousands  | 13?      |
| Networking capability                             | Yes — supports<br>NetWare, LAN<br>Manager, Banyan<br>VINES, TCP/IP | Not yet  |
| Number of UNIX platforms<br>you can run them on   | Sun, HP, IBM,<br>Digital, and SGI                                  | 3?       |
| Availability                                      | Shipping   | On & Off |
| Microsoft Windows 3.1 and<br>MS-DOS 6.21 included | Pre-installed  | No       |

Everybody needs somebody to look up to — if you're looking to run Microsoft Windows $^{\text{TM}}$  and MS-DOS $^{\text{B}}$ -based applications on your UNIX workstation, you'll look up to SoftWindows $^{\text{TM}}$ .

Only SoftWindows provides complete Microsoft Windows and MS-DOS compatibility for thousands of applications, across a range of UNIX platforms. Plus access to PC networks, printers, modems, file servers and support for PC CD-ROMs. The best part is you don't have to grow up to be like Insignia — SoftWindows is shipping today! Call us about our free evaluation program: 508-682-7600.



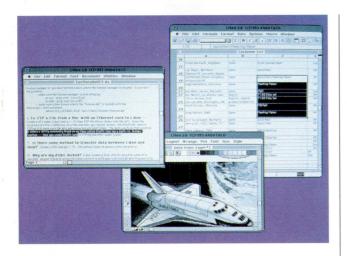
Insignia Solutions®

Insignia Solutions Inc., 6 Campanelli Drive, Andover, MA 01810

© 1994 Insignia Solutions Inc. Insignia and Insignia Solutions are registered trademarks of Microsoft Corporation.

SoftWindows is a trademark used under license, All other product names are trademarks or registered trademarks of their respective holders.

## Liken: Macintosh Emulation For Your UNIX Workstation



#### LIKEN

- Runs on HP 9000/700, IBM RS/6000, Sun and DEC Alpha workstations
- Requires HP-UX version 8.07 or later, 16 MB RAM and 6 MB of disk space
- Cost is \$299 for a fixed license and \$399 for a floating license

#### **Andataco**

10140 Mesa Rim Rd. San Diego, CA 92121 tel: (800) 334-9191 fax: (619) 453-9294

CIRCLE 353 ON READER CARD

hat sounds like WABI, but looks and feels and works like a Macintosh? Did you say MABI? MABI (Macintosh Application Binary Interface) is the tongue-in-cheek name given to the Mac emulation technology behind Andataco's (San Diego, Calif.) Liken. Liken allows Macintosh applications to run on various UNIX workstations.

Liken preserves a Mac lookand-feel by letting you run the Mac Finder within an X Window or launch multiple Mac sessions in several independent X Window sessions. A Liken X Window may range in size from 512 x 342 pixels to 1280 x 1024 pixels in portrait, landscape and two-up modes.

"It's a question of interacting with a Macintosh environment on its own terms," says Dave McMillen, developer and now manager of software technologies for Liken. Liken also provides cut-and-paste capability between the Mac operating system and workstation operating system clipboards. Additionally, Liken includes support for popular file transfer protocols like uShare, Columbia AppleTalk, AppleSingle and AppleDouble.

Liken 2.0 began shipping in February 1994 after Andataco, a systems integrator and reseller, acquired the software. Now with AppleShare client support, users can mount file systems that are physically located on a Macintosh or an AppleShare server. Liken 2.0 now also includes TCP/IP support as well as XpressFax and Meeting Maker XP compatibility.

Unlike Apple's own recently introduced emulation product—the Macintosh Application Environment (MAE) — which uses a special version of System 7, Liken actually uses the System 6 (6.0.7) version of the Mac operating system which, prior to System 7, was freely distributed through Apple users groups and BBSes.

McMillen cautions that Liken should not be your first choice if you think you're replacing a Macintosh. "Few people buy our product to just run [Microsoft] Word, Excel or PowerPoint."

According to Jose Rodriquez, MIS director for Northern Telecom (Miami, Fla.), Liken is a "good tool for the casual user." About 15 HP 9000 Series 715 workstations coexist with applications that are "married to the Mac" on his 100-person network.

Although Liken's monochrome-only display is limiting, Rodriquez has been pleased with Liken's networking and ftp compatibility. And support for CE Software's QuickMail makes Liken "compatible with rest of the crop."

Actual performance is dependent on the workstation being used. According to McMillen, by using an HP 9000 Series 712 you can expect better performance than a Mac IIsi; with an HP 9000 Series 735 or 755 you can expect performance similar to low-end and high-end Mac Quadras, respectively.

Liken 2.0 also is available for the IBM RS/6000 AIX 3.2. It also supports IBM Power PC 250 and DEC Alpha. Liken ships with free 60-day support and a 30-day money back guarantee. A fixed license costs \$299 while a floating license costs \$399.

> —George A. Thompson Technical Editor

### **DATA GENERAL**

## YOUR ONE SOURCE FOR CA-UNICENTER ON ALL UNIX AND PC LAN PLATFORMS





Computer Associates and Data General join forces to distribute, resell, and support CA-UNICENTER worldwide!

Data General's industry-leading AViiON® enterprise servers, complemented by CA-UNICENTER®, bring mainframe-level systems management to UNIX® data center operations. CA-UNICENTER enables data center administrators to easily and efficiently manage storage, production control, security and resource accounting.

With this announcement, Data General also becomes a certified consulting and training partner for CA-UNICENTER. This certification allows Data General to provide single source sales and support to our mutual customers.

To get you started, we are offering a 30-day free try-buy program for CA-UNICENTER for AViiON Systems.

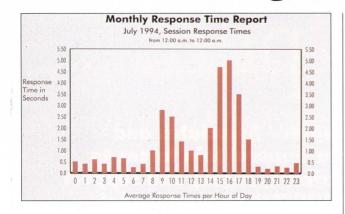
For further information, call 1-800-DATA GEN.

COMPUTER®

Software superior by design.

Data General
The Open Systems Experts

## Syspak Takes The Fear Out Of Working In The Dark



#### SYSPAK

- Automatic exception alerts
- Online and historical performance
- Automatic graphic reporting

#### Carolian Systems Corp.

3397 American Dr. Unit 5 Mississauga, ON L4V 1T8 tel: (905) 673-0400 fax: (905) 673-7030

CIRCLE 352 ON READER CARD

ith Syspak software, Carolian Systems (Mississauga, Ontario) brings its interpretation of "lights out, hands off" data center management, Operation by Exception (OE), to performance monitoring. Syspak's design is based on the assumption that few people have time to watch a performance monitor waiting for something to happen.

Syspak continuously monitors the system for you. It alerts you, through a variety of means, only when actual performance falls outside defined, acceptable values. In addition to the automatic exception alerts, Syspak monitors and logs general system performance 24 hours a day and automatically generates daily, weekly, monthly and trend graphs that can be printed

directly on many standard system or slave printers.

Syspak also includes Sysview, a complete, online analysis tool. Finally, Syspak includes a module called Replay, which can best be described as Sysview for historical data.

Syspak was designed for quick, easy installation. It has built-in intelligent defaults that enable Syspak to be up and running, collecting data and monitoring performance usually within 15 minutes. Installation does not affect production. Alert values can be changed as conditions change and as experience is gained.

Syspak's alert function monitors your system and notifies you immediately of potential performance problems before they have a chance to develop. Notifications can be sent to specific users, the system console or even to a pager using Carolian's optional Advisor product. Alerts are logged and can be viewed at a later time.

Syspak's automatic reporting feature gives you a set of customized graphic reports when you want them. Specify the resource (for example, CPU usage) and the time frame, and Syspak will generate a report on that resource for every specified time period. You also can obtain individual reports interactively on demand. Syspak graphs can be printed on any HP LaserJet II, III or 4 and on any HP 256x printer.

With Syspak's log files, you can

review past performance by producing reports, as well as zoom in on a specific day and time using Syspak's Replay feature. Syspak's logging process, SPLOG, runs as a background job and periodically (user defined) takes snapshots of your system's activity. These log files can consume a lot of disk space over time so Syspak provides a means for automatically managing the log files. AutoTrim controls the number of log files kept on your system automatically. Syspak can also automatically archive files to tape for later analy-

Sysview isolates specific bottlenecks or monitors general resource usage. Sysview's global and process-level displays help you determine the impact of specific processes on overall performance. Global displays monitor CPU, memory and disk.

Replay allows you to review log file snapshots of performance data. Replay uses the same screens as Sysview. It allows you to review what was going on when an alert was issued or when system performance complaints were generated.

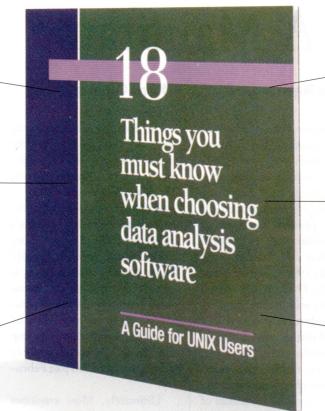
Syspak runs on MPE V and MPE/iX systems and is available for a limited time for \$995. Annual support is \$495.

—John P. Burke, HP 3000 Editor

What's the single most important feature to look for?

Does the software combine strong off-the-shelf capabilities with customizability?

What's the biggest mistake you can make?



Will you have confidence in your results?

How well documented is the software?

Does the software provide presentation quality results?

This new guide is yours free and without obligation when you call BBN at 800-331-2266 ext.91

If you do data analysis, we have some important news. Now you can receive our valuable guide that includes information you must know when you choose data analysis software. It includes helpful charts, checklists and answers to important questions like "What is the most important feature you should look for?" and "What's the biggest mistake you can make?"

This free guide was created by BBN Software Products. Send for it now, and we'll also introduce you to a remarkable new product called BBN/Cornerstone.™ It's exploratory data analysis software that's even easier to use than a spreadsheet, because it seamlessly integrates data access, visualization, analysis and presentation of results.

#### **BBN/Cornerstone**



So use the coupon below, or call BBN directly at

800-331-2266 ext. 91

**CIRCLE 103 ON READER CARD** 



☐ YES, please send me "The 18 Things You Must Know When Choosing Data Analysis Software" absolutely free and without obligation.

Name Title Company

Mail Stop

Address City/State/Zip

Telephone E-Mail



Mail now, or fax coupon to 508-429-8395 or:

Call 800-331-2266 ext.91

**BBN SOFTWARE PRODUCTS CORPORATION** P.O. Box 6100, Holliston, MA 01746

#### Strategic Directions

## Mainframe Control Without A Mainframe

Tivoli Systems Provides Solutions For Single-Console Control Of Multiple Operating Systems



"We want to restore mainframe levels of control while dramatically reducing the cost of remote systems management."

> Franklin Moss President and CEO Tivoli Systems Inc.

#### Tivoli Systems Inc.

9442 Capital Of Texas Hwy. N. Arboretum Plaza One Ste. 500 Austin, TX 78759 tel: (512) 794-9070 fax: (512) 794-0623

CIRCLE 355 ON READER CARD

atience. Foresight. System management solutions. When it comes to distributed client-server architectures, all three are in short supply. At \$60 million, systems management software products represent a small fraction of the overall multibillion dollar client-server market. By 1998, however, companies like Tivoli Systems (Austin, Texas) will be supplying system management products in a projected market of \$4.5 billion.

Founded in 1989, "Tivoli was one of the first companies to achieve broad recognition in the market," says Richard Villars of IDC (Framingham, Mass.). The Tivoli Management Environment (TME) 2.0 is based on wellestablished standards promoted by industry groups like the OSF, OMG and USL.

Tivoli's Management Platform conforms to the OMG's CORBA 1.1 specification and its APIs were endorsed in January 1994 by X/Open as a new distributed system management standard. Using object-oriented technology, the Platform serves as the core software for Tivoli and third-party applications. Tivoli's Application Extension Facility (AEF), Event Integration Facility (EIF) and Advanced Development Environment (ADE) toolkits provide for application customization, integration and development. "We want to restore mainframe levels of control [in distributed environments] while dramatically reducing the cost of remote systems management," says Franklin Moss, Tivoli's president and CEO.

Although deployment applications have been the company's traditional focus (Tivoli Admin, Tivoli/Courier and Tivoli/Print), Moss says the company is now "concentrating on operations management in equal measure." Consequently, Tivoli/Workload, Tivoli/Epoch Backup and Tivoli/Enterprise Console were introduced this past February.

Ultimately, Moss envisions Tivoli providing solutions "where all systems are managed from a single console and operating on multiple platforms." For example, the Enterprise Console is a rules-based event manager that acts as a central point for messages and alerts. The Enterprise Console is integrated with HP's OpenView, its network management product, as well as with similar products from IBM, Sun and Novell.

Because Tivoli's integration with other vendors' products is so important, Moss says Tivoli practices a certain "vendor agnosticism" when it comes to working with over 25 technology partners. Although Tivoli's largest percentage of current TME sales come from HP OpenView (HP-UX) customers, TME 2.0 will run on the

following platforms: Solaris and SunOS, AIX, Motorola SVR4, DG/UX, AT&T GIS System 3000 SVR4, Novell NetWare and Windows NT. Client platforms include DOS/Windows and Windows NT.

Although Tivoli is wellknown for its technology, Moss doesn't want to be typecast as a technocentric company. "We've been shipping end-user products since 1991." In fact, this year Moss predicts that privately-held Tivoli (with 1993 revenues of \$13 million) will sell about \$25 to \$35 million worth of software to Fortune 500 companies. And with consultants in every major office in the United States. Tivoli's Professional Services helps ensure that companies, such as discount broker Charles Scwhab, GTE Data Services and the Prudential/UK are satisfied.

That's a step in the right direction according to IDC's Villars who thinks that Tivoli now needs "to develop their sales and consulting skills" to make the transition to a product-driven company.

Moss recognizes the task of providing system management solutions is a challenging one. "You just don't throw something over the transom and say 'good luck.' We have a new program in place to recruit and encourage new VARs."

—George A. Thompson, Technical Editor

### Your Work-Station...





- SUN Microsystems
- Hewlett-Packard
- Silicon Graphics
- IBM RS/6000
- **DEC**

SUN, Hewlett-Packard, Silicon Graphics, IBM and DEC are registered trademarks of their respective companies.



- New, high performance, pre-tested peripherals and custom engineered RISC add-ons for SUN, HP, IBM, DEC and SGI environments.
- All available now at extremely competitive prices with your choice of 2, 3, 4 and 5 year warranties.
- Pre/post sale technical support developed by our knowledgeable staff through 16 years of intense experience.

1-800-443-6699

EMail: info@wsm.COM

## Together We Perform.



Internal Disks to 9.1 Gbytes per spindle

16 Gbyte 4mm DAT Subsystems



Multi-function Optical Drive Subsystems

 Newest technologies are qualified on all RISC platforms and inventoried immediately

**Peripheral** 

**Expertise...** 

Direct relationships with premier manufacturers

Our

- Factory trained technical support staff
- Sixteen years experience
- Fast and Fast/Wide SCSI-2 experts

External Disk Subsystems with 9.1 Gbytes per spindle



Autoloading 192 Gbyte 4mm DAT Jukeboxes

Corporate Office, San Diego Tel. 619-565-6699

Fax. 619-565-6938

Irvine, 714-263-0303 Chatsworth, 818-773-8833 San Jose, 408-243-0168 Scottsdale, 602-229-1166 Albuquerque, 505-884-6699 Denver, 303-788-0878 Your No-Risk RISC Peripherals Company



Founded in 1978

#### Strategic Directions

## Accelr8 Follows Migratory Patterns

Accelr8 Technology Assists Customers With VAX/VMS To UNIX Migration



"We believe that
UNIX is going to be
adopted when the
VAXes run out of
horsepower."

Robert Hickler President Accelr8 Technology Corp.

### Accelr8 Technology Corp.

303 E. 17th Ave., Ste. 108 Denver, CO 80203 tel: (303) 863-8088 fax: (303) 863-1218

CIRCLE 351 ON READER CARD

ime eventually catches up with the best of machines. As fond as DEC users may be of the VAX/VMS platform, sooner or later they will have to move. What will their target platforms be? Robert Hickler, president of Accelr8 Technology Corp. (Denver, Colo.), took a good guess in 1987 when the company was formed.

"We set out to help people migrate from VMS to UNIX and RISC-based processing," Hickler says. "At the time, we saw that RISC technology was providing 10 times the price/performance of the VAXes, and felt that the price differential would be a strong attraction to VAX users. As it turned out, all the RISC boxes are UNIX, so we didn't chose UNIX as much as the industry chose it."

According to Hickler, there are from 400,000 to 600,000 aging VAXes in use today. "I've seen market research from DEC showing that of the existing VAX installed base, one-quarter to one-third intend to move to a UNIX box."

Recent bad news from DEC has made an alternative long-term computing strategy all the more urgent for DEC customers, in Hickler's opinion, and as a result, they have become more receptive than ever to RISC and UNIX, and in particular to the HP 9000 HP-UX platform.

Aaron Albert, executive vice president at RGTI (New York, N.Y.), concurs. RGTI, a software developer and systems integrator, has offered a complete warehouse management system since 1971, first for DEC's PDP-11 and then for VAX/VMS. RGTI was a VAX/VMS shop exclusively until 1991 when, in response to customer demand, it migrated its products to UNIX using a suite of Accelr8 products.

The Accelr8 products, marketed under the trademark Open Software Solutions, fit into three categories: user productivity tools, software migration tools and data transfer utilities. Accelr8 also provides consulting and support services.

The user productivity tools include Open DCL, a command interpreter which allows VMS users to operate UNIX systems with familiar VAX DCL commands. Another, Open TPU is an editor that includes features and functions that are compatible with the VMS TPU editor.

The application migration products include Open Libr8, a library of callable routines, native to and optimized for UNIX, using the same naming conventions as the VAX runtime system. The Open Acclim8 FOR TRAN converter automates the migration of VMS-specific FOR TRAN applications from VMS to UNIX. And, Open BASIC is a retargetable compiler that reads VAX BASIC and

generates portable C source code.

The data sharing utilities include Open Transl8, a recordoriented file transfer and conversion utility that moves binary and text data between VMS and UNIX systems on a network. And, Open Integr8 is a record access system that allows data sharing between binary incompatible systems on the same network.

Though RGTI has used Open Libr8 and Open DCL, it currently uses one Accelr8 product, FMS/UNIX, a plug-compatible replacement for DEC's FMS forms management software. "It takes something which essentially is a VMS-only product and makes it available in the UNIX world. It's functionality and quality are fine, and the support from Accelr8 is very good," says Albert.

Since February 1994, Accelr8 has joined HP in a joint marketing program designed to provide a path for VAX users moving to the HP-UX world. "HP is making its sales force and potential customers aware of our products as a way of bridging off VMS and on to HP systems," Hickler says.

A strong interest in the HP-UX platform among VAX/VMS users is something Albert also has discovered. "If the two players with the biggest market share are IBM and HP, HP is the technical choice," he says.

—Sam Dickey Contributing Editor



### Since introducing MAC-PAC® OPEN software for UNIX®, there's been some hissing from the competition.

There are a lot of lofty promises made by manufacturing software vendors. But when you consider how little evidence supports them, their claims start to sound a bit inflated.

MAC-PAC OPEN isn't built on a promise. It's built on some of the best business practices of today's industry leaders. It's built on proven technical architecture for true hardware and database flexibility. It's built on the unsurpassed industry experience of Andersen Consulting.

Which means that MAC-PAC OPEN, available on IBM\* AS/400\* or UNIX hardware platforms and databases, can actually deliver exactly what manufacturers really need. A robust,

integrated, full-enterprise solution. So it's no wonder the competition is doing so much hissing.

ANDERSEN CONSULTING

**Software Products** 

For more information on MAC-PAC OPEN, call 1-800-541-7512 or 1-312-507-6588.

IBM and AS/400 are registered trademarks of International Business Machines Corporation. MAC-PAC is a registered trademark of Andersen Consulting. UNIX\* is a registered trademark of UNIX Systems Laboratories, Inc.

Mechanisms

For EDI Delivery

Evolve To Promote

The Acceptance

Of The Internet

As Part Of A

Global Commerce

Network.



Originally designed as a network to enhance communications and file sharing among its users, the Internet would seem to be an unlikely medium for delivering Electronic Data Interchange (EDI) transactions. Yet, the Internet is currently transporting EDI data between organizations in certain industry sectors and there are plans for many more to become involved in the near future.

Using the Internet as a communications medium for the transfer of EDI transactions has been pioneered by the U.S. Federal Government and the educational community. The experience of the educational community in establishing a method to transfer student transcripts between K-12 schools and colleges

provides an ideal case study to examine the current state of EDI data transfer via the Internet.

The transfer of student transcripts between educational establishments has traditionally been a source of much frustration for all the parties involved. Some pioneering states, such as Florida and Texas, decided to develop their own file formats for exchanging transcripts between K-12 schools and colleges. Exchanging an electronic form of the student transcript within the states proved to be highly successful.

In 1988, the American Association of Collegiate Registrars and Admissions Officers appointed a task force to determine how student transcripts could be ex-

Trevor Richards

## Graduates Elnternet

changed nationally. The task force later adopted the acronym SPEEDE (Standardization of Postsecondary Education Electronic Data Exchange).

A parallel task force was created by the National Center for Educational Statistics for transcripts of pre-kindergarten to 12th grade. This task force adopted the acronym ExPRESS (Exchanging Permanent Records Electronically for Students and Schools). The two task forces then collaborated to define a single transaction set, the Student Educational Record (130), which accommodates K-12 and college transcripts. In February 1992 this transaction set, which contains the joint SPEEDE/ExPRESS format, was formally adopted as an ANSI ASC X12 standard.

Florida still leads the pack in terms of transcript activity. The K-12 schools and colleges still use the earlier proprietary *faster* format for transcripts exchanged between schools within the state, and they are able to convert to and from the X12 Student Educational Record transaction set format for out-of-state traffic.

In Texas, many schools still use the internal TXETN format and communicate with each other via the GE Information Services (GEIS) value-added network (VAN). However, the Austin Independent School District and the University of Texas at Austin have successfully exchanged the X12 Student Education Record transaction set over the Texas Education Network (TE-



NET), which is an Internet-based network available to all public schools in Texas. There also are Internet-based regional development projects underway in California and Washington.

#### CAN INTERNET DELIVER?

A GREAT DEBATE IS currently taking place within the educational community to determine which delivery systems should be used for exchanging transcripts. The least desirable of the three options being considered is the Internet's File Transfer Protocol (ftp). If the computers of both educational establishments are connected to the Internet, one establishment can logon to the destination computer and upload the transcripts using ftp. This method requires the sender to logon to each of the establishments that transcripts need to be transferred to, which is likely to be impractical in full production usage.

The second delivery mechanism used is the commercial VANs which provide a secure and reliable delivery mechanism to their users, but they do charge users incrementally by the amount of data transmitted. Some commercial VANs also require the user to maintain a master file on the network, which could become a massive maintenance task.

The last delivery mechanism which is currently used in education is the Internet's Simple Mail Transfer Protocol (SMTP). This delivery method is appealing to educational establishments because it supports the addressing and delivery of EDI data to the over 100,000 K-12 and post-secondary educational establishments. And, it currently has no incremental charges for the amount of data exchanged. The drawbacks to Internet mail as a means of delivering EDI data are a perceived lack of reliability and security, as well as a lack of a mechanism to distinguish between messages containing E-mail and those containing EDI data.

Another user of EDI over the Internet is the Department of Defense (DoD). The DoD's experience suggests that VANs and Internet mail can interoperate to provide a seamless environment in which each partner can select a VAN or the Internet as their communications gateway. Lawrence Livermore National Laboratory (LLNL; Livermore, Calif.) has been running a pilot project for the Wright-Patterson Air Force Base to enable their procurement process to be operated via EDI.

Procurement transactions are collected via the Defense Data Network, a private Internet network, and collected at the EDI hub gateway located at LLNL. The hub gateway connects to several commercial VANs via X.25/X.400 or Internet mail. The fact that at least some of the commercial VANs currently have



gateways for Internet mail suggests that this will be a feature offered by all commercial VANs in the near future.

Internet mail currently carries EDI data in much the same way as it is carried in X.400 messages. The body of the message contains a single EDI interchange. The message is routed via the sender and receiver identifiers on the message header. In 1988, the X.400 standard was extended to allow multiple objects, or body parts, to be carried within a single X.400 message. This means that a text message, a CAD drawing and an EDI interchange can be encapsulated in an X.400 message. The receiving messaging application identifies the message by the identifier attached to each object where it is routed to the appropriate applications. Internet mail has a similar extension to its simple mail capabilities called Multipurpose Internet Mail Extensions (MIME). The methods of identifying EDI objects in a MIME message are being defined by IETF-EDI, a working group of the Internet Engineering Task Force (IETF).

The Privacy Enhanced Mail (PEM) standard will address the security concerns for transferring EDI data via the Internet. PEM is an Internet standard which uses a combination of security techniques to assure privacy, integrity and non-repudiation of messages. With PEM, each part of a message, or the entire message, can be digitally signed or encrypted with the Data Encryption

#### SURFING FOR EDI INFORMATION

There are currently three mailing lists on the Internet which address EDIrelated topics. You can subscribe to these mailing lists from any E-mail service (America Online, CompuServe and MCI Mail) which has an Internet E-mail gateway.

The first mailing list, EDI-L, is a general discussion group for all matters relating to EDI. You can subscribe to this mailing list in the following manner: send a message to the Internet address listserv@uccvma.ucop.edu which contains "subscribe EDI-L first-name last-name" in the body of the message.

The second mailing list, IETF-EDI, is a discussion group which is primarily focused on revising the MIME enveloping standard to include EDI objects. You can subscribe to this mailing list in the following manner: send a message to the Internet address listsery@byu.edu which contains "subscribe IETF-EDI first-name last-name" in the body of the message.

The last of these mailing lists, SPEEDE-L, is a discussion group for all parties interested in the development of ANSI ASC X12 Transaction Sets for the educational community. You can subscribe to this mailing list in the following manner: send a message to the Internet address listserv@vtvml.cc.vt.edu which contains "subscribe SPEEDE-L first-name last-name" in the body of the message.

## to faster code.

Your program seemed slow when you built it. It only got worse with integration. Now it's been released and complaints about its sluggishness are growing. Its poor performance is damaging your customers' view of your product.

#### Quantify

all the time.

Quantify gives you a powerful tool to eliminate performance defects. It lets you see exactly how your application behaves during execution, so you can make your code faster. Because Quantify is simple, effective and non-intrusive, it can be used by all developers,

#### Free Performance Primer

Our 20 page booklet, "Performance Engineering: A Practical Approach to Performance Improvement" gives you expert advice about how you can consistently achieve high-performance code. To receive your free copy of this primer or a free evaluation copy of Quantify, call or email us today.

Phone: (800) 353-7873 Email: info@pure.com



**CIRCLE 178 ON READER CARD** 



Standard (DES) and Public Key cryptography.

Concerns about reliability and accountability of the Internet will begin to disappear once the National Science Foundation network (NSFnet) backbone has been fully replaced by commercial network service providers. The vast majority of EDI transactions are communicated today via a single VAN or through multiple VANs. There is no reason to believe that either VANs or Internet commercial network service providers will predominate in the future. Rather, we will see a mixed environment where VANs, Internet service providers and X.400 gateways can provide a choice of services to use as their primary connection.

#### COMMERCIAL ACCESS

RECENT DEVELOPMENTS suggest that the scope of electronic commerce on the Internet will include online review of advertising, product literature and online order entry. For example, CommerceNet is envisioned as a low-cost, high-speed regional network piggy-backing on the Internet which will use leading-edge technologies, like multimedia software, to create

#### INTERNET THROUGH THE AGES

The Internet was born 20 years ago to link ARPAnet, the U.S. Department of Defense (DoD) network, to other radio and satellite networks. The communications protocol that they used — the Internet Protocol (IP) — was designed to operate as a peer-to-peer computer network where the computers had the responsibility of ensuring that messages were delivered. The academic and research institutions using the Internet soon began encouraging their colleagues to get connected, and demand on the network steadily increased.

By the mid 1980s, Ethernet LANs were being installed and organizations wanted to connect a whole LAN rather than just a single computer to the rapidly expanding ARPAnet, which promoted an even faster growth rate in the number of connected users. In the late 1980s, the National Science Foundation (NSF), an agency of the U.S. government created NSFnet, an ARPAnet-like IP-based network, to connect regional educational networks to five major universities which maintained supercomputer centers. This allowed any university connected to their local or regional network to access these supercomputers for research.

The NSF then promoted universal educational access by providing incentives for four-year colleges if they offered access to their staff and students. Now that most four-year colleges are connected, primary schools, secondary schools and libraries are being encouraged to get Internet connections as well.

#### AT YOUR SERVICE

Today, the Internet backbone consists of various federal, regional, educational, campus, foreign and commercial network service providers which are an open, electronic marketplace. One of the primary projects in which CommerceNet is involved is an Electronic Industry Pilot, which connects the Silicon Valley's electronics industry into an integrated marketplace for manufacturers, such as HP and their suppliers.

A company using CommerceNet services would start by accessing a high-level screen containing top-level directories organized by companies, industries, people, government services or information services. From this access point, the user could view online catalogs, review product literature, study detailed specs in text or graphic form, and download CAD models.

The Internet will have a major role to play in the area of electronic commerce if the current concerns with reliability, accountability and security can be alleviated. The pervasiveness of the Internet also could offer new opportunities to exploit technologies, such as multimedia, that the traditional communication vehicles for EDI data are currently unable to support. —Trevor Richards is the Integration Services manager at Trinary Systems (Austin, Texas). He can be reached on the Internet at trevr@bga.com.

Would you like to continue to see articles on this topic?

Circle on reader card

yes 350 no 349

IP-based. All of these systems cooperate to form a seamless network for their collective users.

Also connected to the Internet backbone are many non-IP-based networks, such as America Online and BITNET, which act as gateways to the Internet. These systems provide various levels of Internet support for their users. Much of the current traffic on the Internet goes directly between commercial network service providers without traversing any government-funded resources.

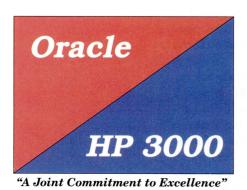
In the near future, NSFnet will be replaced as the primary backbone for the Internet because its users, such as universities and high-speed supercomputer sites, will receive funding that will allow them to obtain services from commercial network service providers instead.

The Internet is currently governed by the Internet Society whose sole purpose is to promote global information exchange using Internet technology. Membership in this organization is voluntary, much like the U.S. EDI standards organization ANSI ASC X12. The Internet standards themselves are blessed by a group of invited volunteers who form the Internet Architecture Board (IAB).

If a new standard needs to be developed, or a current standard needs maintenance, another volunteer organization called the Internet Engineering Task Force (IETF) will form a working group to produce a recommended solution. Once a consensus has been reached and the IETF approves the recommendation, the IETF will pass it to the IAB, who can then declare the recommendation as a standard which will be announced via the Internet.



### Get on track to the future



For more information call 1-800-637-7740 department 8430.

today and the future.

accurate, and complete. These advantages, plus a stable company you can count on,

make Oracle applications the right choice for

Only Oracle provides industry-leading applications that are ported, tuned, and tested by a joint team of Hewlett-Packard

and Oracle engineers. Oracle can also provide specially designed utilities, gateways, and services to make your migration fast,

tment 8430.

HEWLETT

**PACKARD** 



### T h e

## Reality

#### **Network Printing Shifts**

#### From An Ideal Solution To A Real Solution

When I think back on it, it wasn't so bad taking that half-mile trip to the system printer to get my documents. That wasn't the part that bothered me. After all, I was able to talk to friends along the way and catch up on the news.

Actually, the thing that bothered me about the hike to get my printed papers was that along the way, I had to pass by no fewer than six other printers that were closer to my desk, and I couldn't print to any of them. Some weren't on the network because they were dedicated to some politically important person who never printed to them. Some were tied to another network; I think mine was linked into Curley, one of the printers was on Larry, while another was attached to Moe.

That was the irksome part. I could practically rest my feet on a perfectly good printer; I just couldn't print to it from my desktop system. And usually, when I had a really big job to print — the kind that is so big it takes a small truck to haul back all the paper — without fail the footrest printer next to me would be sitting idle. I did an impromptu study of this problem by walking around talking to those who sat by printers. I got answers like:

BILL • S H A R P

"No, that's not my printer. It can't be. It would make too much sense for that to be my printer. My printer is in the next building."

"Yes, that's my printer, but it doesn't work. It's incompatible with our network because it doesn't have the right protocols. So I just keep it here as a status symbol. People are very impressed that I have one so close to my desk. My real printer is 100 yards away."

The real world is a tough place where not everything goes as we envision it. Workable solutions sometimes show up much later than the visions some people sell us when they want us to open our wallets and dump the contents into their wallets. Fortunately, network printing is moving out of the vision category and into the real world. And it happens to be worth some real money. You are spending lots on print server functions. In fact, the print server market is expected to reach \$2 billion by 1997.

Jeff Freeman, director of product management at Emulex Corp. (Costa Mesa, Calif.), wrote a paper on printer server performance that makes several points worth noting.

First, the complexity of printed documents including graphics and special characters has increased so much that the data required for printing a single page can be 100 times what it was a few years ago. Instead of requiring data transmission rates of 10,000 bits per second (bps), printers now may need up to 1 Mbps. This places very different demands on the network. Depending on the performance you require, this may limit your choices for components that sit between you and your printer, any one of which could become a bottleneck.

Second, the protocol used for printing also affects network printing performance. The fastest is TCP/IP. Using TCP/IP on UNIX, you could send a print job directly to a printer on the network without going to a file server first. This is a major reason for the speed advantage of this protocol. Another reason is the flexibility of TCP/IP in fitting the message size and other parameters to the network.

Third, in order of speed, common printing protocols include:

Table 1

| Protocol        | Throughput (characters per second) |
|-----------------|------------------------------------|
| TCP/IP          | 100,000-200,000                    |
| NetWare IPX/SPX | 100,000                            |
| LAN Manager     | 100,000                            |
| AppleTalk       | 25,000 (may be improving)          |
| DEC LAT         | 15,000 (standard DEC software)     |

Finally, file servers may be the most common culprit in sluggish network printing. File servers are saddled with many tasks including file I/O, print management, queuing and gateway functions. An overloaded file server will hold up print jobs and run up your blood pressure. In fact, Freeman points out that printers on a network require less file server CPU time than a printer linked directly to that server; printing on the network may actually be faster than a directly linked printer.

But getting to the network can be a handful. Take the case of David Mack, manager of computer operations for Dreyers Grand Ice Cream (Oakland, Calif.). Dreyers had been using HP 3000 gear for years, but had decided to make a move to a less centralized system. But, the HP 3000 Model 977 was not about to go away — it simply became a node on the new network of PCs. The system also moved from leased lines with dedicated serial connections to Frame Relay with network connections.

Getting the users onto the new system presented relatively few problems for Mack. "We used to have an HP 3000 and its environment," says Mack. "Now we have a PC network, so what we want is everything talking on that network." For most devices, including the HP 3000 that was simple. But the HP 3000 system printers had been used with dedicated lines before the big change, and printed only from that system. Mack wanted to be able to use the same printers to take print jobs from anywhere on the network.

The solution Mack found was NetPrint92 from MiniSoft (Snohomish, Wash.). NetPrint92's NLM communicates with NetPrint92, which runs on the HP 3000. The NLM moves HP 3000 print spoolfiles to a print queue on a Novell network file server, converting print file characteristics from the HP 3000 designations to their Novell equivalents. Now the printers not only print directly from the network for jobs coming from any number of points on the network, but can still receive HP 3000 print jobs in converted form over the network.

The MiniSoft product, says Mack, "sweeps through the HP 3000 every five minutes, reading off the spoolfiles and sending the converted files to the same printers across the new network. This was a heck of a lot easier than I am used to these things being. It works like a charm."

According to Doug Greenup, owner of MiniSoft, "HP has no tool to do that right now. Customers are trying to print through terminal emulators, they use print screen and log bottom, but for HP 3000 folks, there is no simple capability for network printing. HP 3000 users are transaction and batch oriented."

For the users at Dreyers, network printing means increased flexibility in getting the job done, savings over buying yet more printers (many of which will sit idle much of the time), and increased speed in just getting something printed.

Greenup says that for almost everybody, network printing turns out to be a big plus. At MiniSoft, he says, "We have printers on every floor. I'm not stuck with going downstairs; I can do it right here." Then he adds somewhat ruefully, "Now

## MULTIPLE emulations FOR MIXED

## FOR MIXED ENVIRONMENTS

WITH SIMILAR 'LOOK & FEEL'

PERICOM's *teem* range of connectivity software tools will help protect your company's investment in



existing application software. *teemtalk* for the Microsoft® Windows™ operating system and *teem-X* for the X Window System allow access to an entire mainframe

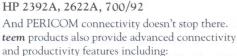
world, enabling the widest range of PCs using Microsoft® Windows™ and X Window-based display stations including DEC, IBM, HP, Silicon

Graphics and Sun to emulate the widest range of terminals.

*teem* products feature flawless emulation of industry standard text and graphics terminals including:

DEC VT100, 220, 320 & 340 (ReGIS) IBM 3270 Tektronix 4010, 4014,

4207 & 4111 HP 2392A, 2622A, 700/



File transfer Scripting language Auto colour mode Programmable soft buttons Dynamic window sizing Dynamic Data Exchange Cut and Paste Extensive network support

Prime PT250

Viewdata

Retrographics VT640

Westward 2119, 3220

Tandem 6526, 6530

So for cost-effective terminal emulation that makes the most of your IT investment, call PERICOM now!

(DOS products also available)





Pericom Inc 9 Princess Road, Suite D Lawrenceville, NJ 08648, USA Tel: 609 895-0404 Fax: 609 895-0408 UK Tel: + 44 (0)908 265533 France Tel: 1 30.61.50.25 Germany Tel: 02 14/50 61 66 Singapore Tel: 278 6545/6 E-Mail: barryb@pericom-usa.com

Microsoft is a registered trademark and Windows and the Windows logo are trademarks of Microsoft Corporation-All other trademarks acknowledged. teemtalk and teem-X are trademarks of PERICOM SOFTWARE PLC

#### **CIRCLE 214 ON READER CARD**



for me that may be bad, huh? My doctor wants me to exercise more."

#### HP AND BANYAN SYSTEMS

HP HAS DONE ITS OWN work to help further the cause of network printing. HP and Banyan Systems Inc. (Westboro, Mass.) are working in partnership to help both firms perform more capably on the network.

For example, Banyan's Enterprise Network Services (ENS) will be integrated with HP's HP-UX operating system. In addition both firms will work specifically to improve network printing speeds, as well as integrating network management and system administration capabilities

Banyan and HP will also work to certify HP platforms and storage devices for use with Vines, Banyan's ENS and NOS product. Finally, the two firms will develop drivers for RAID and SCSI adapters on HP platforms.

HP also added some new printers to its lineup for networked systems. HP introduced the HP 5000 Models C30 and C30D cut sheet printers for medium-volume printing. Both printers

#### NETWORK PRINTING VENDORS Agile's 4550 E/PS is a standalone 875 Alfred Noble Dr. Ethernet printer server. Agile's 5250 Hercules, CA 94547-1899 ALLY is a protocol converter printer (510) 724-1600 interface controller. **CIRCLE 344 ON READER CARD** Facit PowerPlus-408 is a Ahearn and Soper Co. Inc. Facit Division high-volume printer. 540 N. Commercial St. Manchester, NH 03101-1107 (603) 647-2700 **CIRCLE 343 ON READER CARD Axis Communications** NPS 530 and 650 are multiprotocol 99 Rosewood Dr., Ste. 170 Token Ring print servers. Danvers, MA 01923 (508) 777-7957 **CIRCLE 342 ON READER CARD** Banyan is in the midst of a Banyan Systems Inc. co-development effort with HP's Boise 120 Flanders Rd. Westboro, MA 01581 Network Printer Division to speed (508) 898-1000 network printing and integrate network **CIRCLE 341 ON READER CARD** management and system administration services. Belkin Components ParaNet II is a printer sharing 1303 Walnut Pkwy device for up to four printers Compton, CA 90220 (310) 898-1100 **CIRCLE 340 ON READER CARD**

Typhoon 30 is a high-speed,

high-volume network printer.

Dataproducts Corp.

Woodland Hills, CA 91367

**CIRCLE 339 ON READER CARD** 

6219 De Soto Ave.

(818) 887-8000

use the same PCL printer language as the LaserJet and highend HP 5000 printers.

The Model C30 simplex printer provides 30 ppm speed and 300 dpi resolution. The Model C30D provides the same capabilities, and includes duplex printing for two-sided printing at up to 15 double-sided ppm.

The printers are designed for medium-sized data centers and production houses with print volumes of 75,000 to 200,000 pages per month. Design of the printers features few moving parts through the use of a light-emitting diode imaging array. The printers also have a straight paper path for single-side printing, reducing paper jams and misfeeds.

Most printer components, including photoconductor, developer, fuser toner and cleaning unit are packaged in cartridges for easy customer maintenance. The C30 costs \$15,950, and the C30D costs \$21,340.

Probably the most exhilarating news about network printing is the fact that within the next three years, most of us can stop thinking about it. This topic, like many other problem areas of computing, will be resolved to the satisfaction of most users and simply become an assumed part of the operating system.

Kevin Burbank, market planning manager at HP's Roseville

Networks Division (Roseville, Calif.), agrees with this view, one which follows the apparent direction of HP. Burbank notes that for HP the evolution began about three years ago with the introduction of the JetDirect print server card and the LaserJet IIIsi printer. These products allowed users to run a printer remotely across the network.

Right now, network printing is tackling interoperability and multiple operating systems. "Printers now switch automatically between environments so users don't have to worry about it," says Burbank. "The printer detects the type of job and handles it accordingly."

In the near future, HP and other vendors will strive to make printing over the network as easy as printing on a personal printer. These improvements will include wider adoption of standards such as a printer-specific management information base for network management.

In the meantime, HP also will continue giving away lots of software with its printers to make integration as simple as possible.

Would you like to continue to see articles on this topic?

Circle on reader card

yes 348 no 347

| Digital Products Inc.<br>411 Waverly Oaks<br>Waltham, MA 02154<br>(800) 243-2333<br>CIRCLE 338 ON READER CARD              | NETPrint/104, NETPrint/200 and JETXPrint/104 allow users of VINES, UNIX, EtherTalk and NetWare to use the same printers.  | Meridian Technology Corp. 11 McBride Corporate Cntr. Dr. Ste. 250 Chesterfield, MO 63005 (314) 532-7708 CIRCLE 331 ON READER CARD | TCP Crossprint is a NetWare<br>Loadable Module that provides<br>access to printers on NetWare and<br>TCP/IP networks.           |  |  |
|--|---|---|---|--|--|
| Emulex Network Systems<br>3535 Harbor Blvd.<br>Costa Mesa, CA 92626<br>(714) 662-5600<br>CIRCLE 337 ON READER CARD         | NETQue is a four-protocol printer server.<br>NETJet is a multiprotocol printer server<br>Ethernet interface card that fits directly into<br>the internal bus of a printer or plotter. | Minisoft Inc.<br>312 Maple St., Ste. A<br>Snohomish, WA 98290-9000<br>(206) 568-6602<br>CIRCLE 330 ON READER CARD                 | NetPrint92 is a host-<br>based network print<br>spooler.  |  |  |
| Extended Systems<br>P.O. Box 4937<br>Boise, ID 83711<br>(208) 322-7575<br>CIRCLE 336 ON READER CARD                        | ExtendHub ESI-4216A allows LAN administrators to connected up to 16 PCs and four printers directly to an Ethernet network.  | Olympus Image Systems Inc.<br>145 Crossways Park W.<br>Woodbury, NY 11797-2087<br>(516) 364-3000<br>CIRCLE 329 ON READER CARD     | Deltis PagePlex 18 and PagePlex 24 are network printers for workgroup and department use.                                       |  |  |
| Hewlett-Packard Co.<br>3000 Hanover Street<br>Palo Alto, CA 94304<br>(800) 637-7740  | HP 5000 model C30 and C30D midrange printers for use with either HP 3000 or HP 9000 business servers.   | Pacific Data Products<br>9125 Rehco Rd.<br>San Diego, CA 92121  | Pacific DirectNet EX is a multiprotocol external print server for Ethernet networks.  |  |  |
| JetForm Corp.<br>800 South St., Ste. 305   | JetForm Server allows users to add forms output capability to   | (619) 552-0880<br>CIRCLE 328 ON READER CARD   |   |  |  |
| Waltham, MA 02154<br>(617) 647-7700<br>CIRCLE 334 ON READER CARD   | existing network printers.  | Wilco AMS Inc.<br>3223 Ocean Dr.<br>Vero Beach, FL 32963  | NETQUE 3000 is a low-cost<br>HP 3000 network printing<br>solution.  |  |  |
| Linksys<br>16811A Millikan Ave.  | Ethernet PrintServer EPS3 allows users to share one serial and two parallel printers.   | (407) 234-8161<br>CIRCLE 327 ON READER CARD   |   |  |  |
| Tryine, CA 92714<br>(714) 261-1288<br>CIRCLE 333 ON READER CARD  | MegaBuffer provides temporary data storage between computer and printer. MultiShare enables up to 24 PCs to share up to eight printers.   | Xerox Corp.<br>800 Long Ridge Rd.<br>Stamford, CT 06904<br>(203) 968-3000   | Documents on Demand was<br>developed in conjunction with<br>major universities to provide a<br>means for capturing, storing and |  |  |
| The McLean Group<br>1259 El Camino Real<br>Ste. 116<br>Menlo Park, CA 94025<br>(415) 638-1100<br>CIRCLE 332 ON READER CARD | L-15X is a multiprotocol Ethernet printer server for HP 5000 Series C30 and C30D printers. L-25X provides HPIB protocol conversion.   | CIRCLE 326 ON READER CARD   | printing customized course packets<br>or books on-demand. Includes HP<br>Model 40 optical jukebox.                              |  |  |

Messaging Options Service The Whole Enterprise

### Make The Right

## Connections

### With

D i s t r i b u t e d computing.

That's the ticket. But how do you get there? You may not know it, but you're closer than you think. The first pipeline has already been laid. It's common across mainframe, minis, UNIX and LAN computing platforms. You already use it extensively for sending interpersonal text-based messages, but increasingly documents, images, audio and video are all coming at you via E-mail.



According to market research conducted by the Electronic Messaging Association (EMA): In 1993, 55 percent of the Fortune 2000 were using electronic mail; the total number of E-mail sites grew 83 percent in the last two years; LAN-based E-mail is growing, particularly at branch sites; and reflecting the impact of EDI, messages to other companies have nearly doubled since 1991.

Over the years, a hodgepodge of disparate E-mail systems have developed. Mainframe E-mail systems such as HPDesk, IBM PROFS, and DEC ALL-IN-ONE and VMSmail have provided employees in large enterprises with a way of keeping in touch. Within the past several years, departmental workgroups have been communicating through LAN-based E-mail systems like Lotus cc:Mail or Microsoft Mail. Added to

**GEORGE A. THOMPSON** 



ow you can add workstations to your Domain/OS or HP-UX environment at only a fraction of the list price.

That's what remanufacturing is all about. Recent model, lower cost equipment that runs like new because it has been rebuilt. From the ground up. To manufacturer's specifications.

Literally manufactured a second time. By **Tryonics**,



the people who know how to optimize these systems for your installation—new or existing.

Tryonics delivers the highest quality remanufactured workstations on the market today. Backed with technical expertise, full 90-day warranty and eligible for manufacturer's maintenance contract.

Before you pay more, call **1-800-551-6236** 



Workstation Computers and Services

**CIRCLE 477 ON READER CARD** 



that mix are UNIX-based workstations using TCP/IP protocols and any number of assorted gateways and hubs to the outside world (for example, MCI, CompuServe and the Internet).

Before companies and their employees can take full advantage of the communal E-mail zeitgeist however, IS managers must figure out how to logically and physically link all those different hosts, PCs, workstations and even Macintoshes into an enterprise-wide messaging network.

"Interoperability and migration are the keys," according to Ron Rassner, director or technology research for Wingra Technologies (Madison, Wis.). The problems, according to Rassner, are the increasing administrative burden of supporting multiple point-to-point gateways; performance, because passing through multiple gateways is slow; lack of binary file transport; and synching directories." And he is aware that IS managers want three significant services from an intelligent messaging hub: directory services, management services and document conversion.

# Before companies take advantage of E-mail, IS managers must logically and physically link all those different hosts, PCs and workstations into a messaging network.

In the DEC VAX world, Wingra's Missive is a system-to-system electronic messaging switch that connects VAX-based systems to PC LANs (Lotus cc:Mail and Notes, DaVinci eMail, Microsoft Mail, Novell GroupWise 4.1 and BeyondMail). Missive provides direct links to Novell's MHS, UNIX/SMTP networks, as well as DEC's VMSmail and Message Router. Wingra also provides document conversion via KEYPak technology from Keyword Office Technologies Inc. "We don't do hardware," says Rassner.

#### AGENTS IN THE ARCHITECTURE

BUT HP DOES HARDWARE. And software too. So, HP is filling the need for enterprise E-mail with HP OpenMail, its client-server messaging backbone. Messaging backbones like HP OpenMail offer several attractive features for those struggling with legacy and LAN E-mail integration.

According to Morris Jeffries, marketing messaging manager at HP, IS managers who have gone to a departmental solution with LAN-based E-mail "have found that they are now [having problems] in the areas of directory management, trouble-shooting and with the fidelity of messages."

But large companies are not the only ones discovering the limitations of PC LAN-based electronic messaging, so are the LAN E-mail vendors. For evidence, look no further than Lotus' and Microsoft's technology directions concerning their next generation E-mail architectures. Both have plans for client-server E-mail models. Lotus' Notes/Lotus Communication Server (LCS) is an all-in-one approach using cc:Mail. Microsoft's Enterprise Messaging Server (EMS) uses its own Microsoft Mail product linked to their NT Advanced Server.

But Mike Rothman of the META Group (Reston, Va.) observes, "HP is the only vendor selling a product." Microsoft's EMS solution is expected in late 1994 and Lotus' LCS not until 1995. Says HP's Jeffries, "We have a tremendous opportunity to capture a significant amount of the marketplace for an enterprise client-server level electronic messaging backbone."

OpenMail supports several different PC-based E-mail APIs: Lotus Vendor Independent Messaging (VIM); Microsoft's Messaging Application Program Interface (MAPI); Common Messaging Control (CMC); P7; as well as HP's own UAL. And OpenMail supports GUIs for DOS/Windows, Macintosh, HP-UX/Motif, Sun Solaris and character terminals.

Front-end clients (or mail user agents) include Lotus cc:Mail and Microsoft Mail for DOS/Windows PCs, Applix Aster\*x and Clarity Rapport for UNIX workstations as well as HP NewWave Mail, AdvanceMail/T1 for terminal and AdvanceMail/PC for MS-DOS users. According to Andrew Ransom, marketing product messaging manager at HP, "We are separating the client portion from the backed server portion to offer as much flexibility as possible."

Running on an HP 9000 system, the OpenMail server provides a X.400 compliant message store and directory services. OpenMail also integrates with X.500 directories via the standard XDS interface. Mail transport protocols include X.400 and SMTP today. MIME-compliance is forthcoming in the third quarter of 1994.

Currently, you can get 5,000 users per server, but with heavy usage in a normal configuration its more like 2,000 concurrent users, states Jeffries. The VIM API enables Lotus Notes users to use cc:Mail as a client and HP OpenMail a back-end engine. For example, "When a user says mail a message or mail this attachment [in Lotus Notes] its actually talking to OpenMail," explains Jeffries. So in effect, you have a Lotus back-end for information management and an OpenMail back-end for messaging transport and delivery.

With 9,000 mail boxes in the United States, HP OpenMail is working well for Northwestern Mutual Life (Milwaukee, Wis.), the 8th largest life insurance company in the United States.

"Anytime we can move someone off our mainframe legacy mail system, it saves us from having to buy a bigger, faster mainframe," says Blane Woodard, technical systems manager for Northwestern. "We use MS Mail in the home office as a client and out in the field we've written a DOS-based client that enhances our older proprietary system." As a true client-server solution, "its very friendly to our network," he says. "Many

## Why not the best?



HP 1000, HP 3000 & HP 9000

8 & 25 Gigabyte Streaming Tape Drives

96 Gigabyte DDS Autochanger

Unattended backup of all data onto compact cartridges

Media Translation & SS update service available

#### Also Available:

#### **HP 1000 Memory**

Improves system performance. Free evaluation. 2 to 32 MB for A990, A900, A700, A400, A600+, & A600. Ten year warranty. Field Expandable



**HP 1000 & HP 9000 SCSI Disk Drives** Capacities to 2 GB with full five year warranty.

#### HP 1000 & HP 9000 Optical Discs

1 Gigabyte Rewritable & Multi-function. Ideal for information retrieval and archival data storage

Superclock/1000 Automatic time & date

"I promise you no service hassles, no matter who is servicing your HP system."

Rick Walsh President



Herstal Automation

7414 Manatee Street Sarasota, FL 34243-1824 U.S.A.

Phone: 1-813-358-2001 FAX: 1-813-358-2010

E-Mail: SALES@HERSTAL.COM



people don't understand that you can implement cc:Mail or MS Mail without implementing their post offices."

By swapping out PC-based post offices with a HP server and letting the end user perceive no difference, HP OpenMail scales very well. Northwestern Mutual has OpenMail servers spread across the country and two in the home office.

#### CATCHING SOME ZS

IF YOU ALREADY HAVE DOS/Windows, Macintosh and UNIX workstation clients, then you can integrate them by using Z-Mail from Z-Code Software (Novato, Calif.). "Z-Code is an intelligent, rules-based user agent engine that runs against open systems messaging transports," according to John Payne, director of strategic development for Z-Code. Clients (mail user agents or MUAs) plug into standard SMTP or X.400 transports (mail transport agents or MTAs).

"We provide client software for native Macintosh, Windows and Motif, as well as character-based UNIX that use TCP/SMTP/MIME environments so that users can leverage the existing infrastructure by reusing and extending their E-mail assets." For example, in an HP OpenMail environment, because HP OpenMail servers use SMTP, Z-Code can be used as a user

agent, transmitting OpenMail messages received or created by OpenMail clients via the SMTP transport protocols.

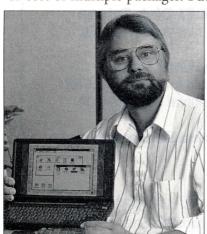
But there's more than one way to send E-mail on a messaging backbone. Control Data Systems Inc.'s (CDS; Arden Hills, Minn.) Mail\*Hub provides what's best described, according to Robert Anderson, manager of CDS' electronic messaging marketing, "as a X.400/X.500 backbone with distributed switch technology."

Unlike HP OpenMail which uses HP PA-RISC hardware and a HP-specific message store, CDS' Mail\*Hub provides for native post offices on its server platforms (HP-UX, Sun Solaris, IBM AIX or Novell). Mail\*Hub also supplies a number of native gateways to cc:Mail, Microsoft Mail, Novell MHS-based mailers, Lotus Notes, Novell GroupWise 4.1 and Macintosh QuickMail. Mainframe connectivity is provided by gateways for DEC VMSmail, ALL-IN-ONE as well as IBM's PROFS and Office Vision/VM/MVS/AS400.

Anderson says CDS' Mail\*Hub is focused on gateways and the address books associated with the various legacy and LAN-based mail applications. Whereas HP OpenMail uses third-party gateway vendors like Boston Software (Boston, Mass.) or SoftSwtich (Wayne, Pa.), CDS provides their own distributed gateways. For the address books, Mail\*Hub provides X.500 directory synching products like Banyan's StreetTalk.

## "Hewlett-Packard Co. chose DynaComm<sub>®</sub> as a *realistic* terminal emulation solution for the OmniBook."

"We needed several different terminal emulations in the OmniBook but couldn't afford the footprint or cost of multiple packages. FutureSoft delivers a comprehensive solution at a responsive price."



JERRY ERICKSON

R & D

Hewlett-Packard Co.

At FutureSoft, we know these are serious considerations for your users' desktop PCs, as well as subnotebooks like the OmniBook.

#### DynaComm delivers:

- Extensive emulation support and network connectivity in one package
- Essential tools, including powerful scripting, full DDE support and graphical dialog and toolbar editors
- Pricing that reflects real value

1-800-989-8908

Call your account manager for more information!



Power and Flexibility in PC Connectivity

FutureSoft • USA • 12012 Wickchester, Suite 600 • Houston, Texas 77079 • 713.496.9400 • FAX 713.496.1090 Europe • Nijverheidsstraat 12 • 2288 BB Rijswijk • The Netherlands • 31.70.390.7727 • FAX 31.70.390.7005

Windows is a trademark and Microsoft is a registered trademark of Microsoft Corporation. DynaComm and FutureSoft are registered trademarks of Future Soft Engineering, Inc. Hewlett-Packard is a registered trademark of Hewlett-Packard Co.

What it all comes down to this: messaging is an enterprise-wide activity. At one time, E-mail only affected how your employees communicated with each other. Now it's clear, E-mail is becoming the pipeline for electronic commerce on a worldwide scale as companies conduct business-to-business communication between and among each other. "Last year we just focused on getting Email from point A to point B. This year, we are seeing more interest in enterprise-wide directories," says CDS' Anderson.

As the E-mail infrastructure grows and the technology matures, companies will be able to take advantage of messagingenabled applications (MEAs) to foster collaboration and workflow. The integration of those technologies are the next challenge for E-mail vendors like HP and CDS.

The EMA has concluded that after voicemail, E-mail is now the preferred medium for exchange for inter- and intra-corporate communications. Some analysts predict that by 1996 there will be 25 million public service E-mail users, and by the year 2000 some believe there will be 13 million users of wireless E-mail. With the right standards-based messaging infrastructure, the world can be at your door.

> Would you like to continue to see articles on this topic? Circle on reader card

#### COMPANIES MENTIONED IN THIS ARTICLE

Applix Inc. 112 Turnpike Rd Westboro, MA 01581 (508) 870-0300 **CIRCLE 335 ON READER CARD** 

The Boston Software Works Inc. 177 Milk St Boston, MA 02109 (617) 482-9898 **CIRCLE 314 ON READER CARD** 

Clarity Software Inc. 2700 Garcia Ave. Mountain View, CA 94043 (415) 691-0320 CIRCLE 313 ON READER CARD

Control Data Systems Inc. 4201 Lexington Ave. N. Arden Hill, MN 55126 (612) 482-2401 CIRCLE 312 ON READER CARD

**Electronic Messaging Association** 1655 N. Fort Meyer Dr. Ste. 850 Arlington, VA 22209 (703) 524-5550 **CIRCLE 311 ON READER CARD** 

SoftSwitch Inc. 640 Lee Rd. Wayne, PA 19087 (610) 640-9600 CIRCLE 450 ON READER CARD

Wingra Technologies Inc. 450 Science Dr Madison, WI 53711 (608) 238-4454 **CIRCLE 449 ON READER CARD** 

**Z-Code Software** 4340 Redwood Hwy. Ste. B-50 San Rafael, CA 94903 (415) 499-8649 **CIRCLE 448 ON READER CARD** 

#### Let GATEWAY/3000 for MCI MAIL

postmark



electronic mail message anywhere and save \$\$\$!



» Runs on any host

» Consolidates e-mail

under one gateway

» Connects you to any

Compuserve,

Internet, Bitnet,

Infonet, ATTMail.

and more, via X.400.

» Installs quickly, with

worldwide high

speed access

available.

remote mail system,

(ASCII and binary),

fax, telex connections

HP3000.



E-Mail, Inc. 1111 S. Arroyo Pkwy. Suite 470 Pasadena, CA 91105 USA 818-403-1999; Fax: 818-403-1995

- » Supports HP Desk Mail pending tray, replies, attachments, and lists.
- » Hooks seamlessly with One-Stop Mail, HP Desk or Open Desk, Xpress and offers application access to any other mail system or link.
- » If you do not have an e-mail system call us for a free trial of the One-Stop Mail e-mail package today.



Channel Partner

## The Winds Of Change

## hange looms on the horizon. By this time next

year, most of us will have first-hand experience with at least two of three new major Microsoft operating system releases. Representing a bold leap in technology, all three releases — code named Daytona, Chicago and Cairo — feature full 32-bit implementation, backward compatibility and some powerful new enhancements.

#### WINDOWS NT COMES OF AGE

Windows NT, the first 32-bit operating environment from Microsoft, has been shipping for almost a year. Although it brings a powerful platform to the enterprise, it is severely limited because it relies on MS-DOS as its foundation. Consequently, it has inherited all of the limitations we've been frustrated with for years: eight character file names, relatively slow and inefficient file systems, and a 16-bit architecture.

The next release of Windows NT (version 3.5), aka Daytona, marks what I believe is Microsoft's first "professional quality" release of NT. It features powerful and flexible networking capabilities that let Win NT systems fit anywhere in a corporation. And, with its Advanced Server edition it's primed to serve as an engine for enterprise computing.

Like its predecessor, Daytona can use MS-DOS as its foundation; but unlike earlier versions, Daytona doesn't require MS-DOS—it is finally a Windows operating system. However, giving up MS-DOS doesn't mean giving up MS-DOS compatibility. An important feature of Daytona is its ability to emulate MS-DOS to execute existing applications.

While Microsoft continues to position Daytona as shared resource or file server for networked Windows systems, it offers a great opportunity for power users and programmers to begin experimenting with 32-bit or multithreaded applications right away.

#### NEW YEARS IN CHICAGO

After spending a New Year's holiday in Chicago, I know I'd rather be anyplace but on the Lake Michigan shoreline in winter. But by December the direction of the computer winds will be turned toward Chicago. Not the city, of course, but the new Windows client software. Although some people have called the Chicago release "Windows 4," I've heard rumors that the product will be marketed as "Windows 95."

No matter what it's called, Chicago will finally bring full 32-bit computing to the desktop. Unlike Daytona and other Windows NT releases, Chicago is intended to replace Windows 3.1 and Windows for Workgroups 3.11 on everyone's desk. Those of you who have used NewWave will feel right at home with Chicago.

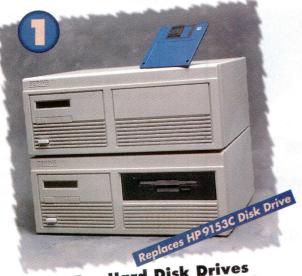
In fact, the first time I saw Chicago working, it had the same dark green Mass Storage Peripherals for Hewlett-Packard Computer Users

## GOT A SPACE PROBLEM?

When your Hewlett-Packard computer gets cramped for data storage space, that's a big problem. The solution is as easy as 1-2-3!

- 1. Looking for more **HARD DISK** space? We've got it...up to 2.0 Gbytes!
- 2. Need a removable-media, rewritable **MAGNETO-OPTICAL DISK DRIVE** that provides quick, high-capacity on-line or near-line access to important data or graphics files? Bering has the right one for you.

3. Or how about a **150 Mbyte BERNOULLI® DISK DRIVE** for speedy, versatile, low-cost secondary storage that's infinitely expandable? We're ready when you are.



**EconoPac Hard Disk Drives**High speed disk drives up to 2.0 Gbytes with 3.5" floppy
drive. Use EconoPac drives to replace discontinued HP9153C
disk drives. Dual HP-IB and SCSI interface.



MultiPac 150 Bernoulli Disk Drives
High capacity 150 Mbyte Bernoulli disk drives for rugged, high
speed, removable disk performance. Great for transporting and
exchanging data, backup and archiving large data files.



**OptiPac MO Disk Drives**Store up to 1.3 Gbytes on high-capacity, removable magneto-optical cartridges. The perfect choice for backup and archiving large databases.

Bering disk subsystems include Bering's innovative "SC" dual interface feature – both HP-IB and SCSI connections. Migration from HP to other SCSI-based computer systems is accomplished with the simple "push of a button." Don't leave your hardware investment behind – take it with you!

Bering also offers CD-ROM, removable hard disks, floppy disk drives, DDS and 8mm tape drives and many other storage solutions for your HP computer with HP-IB or SCSI interface.



Call Toll-Free to Bering at 800.237.4641

Outside the United States call 408.379.6900 or fax us at 408.374.8309 for more infomation.

Microsoft's new releases — code named Daytona. Chicago and Cairo — feature full 32-bit implementation, backward compatibility and some powerful new enhancements.

HP9122C HP9153C Replacements

## ISA Floppy Disk Family



#### ISA 1015

(HP9122C Compatible) 3.5 inch dual HP-IBSS/80

#### ISA 2025

(HP9153C Compatible) 40MB with 3.5 inch single HP-IB CS/80 SS/80

#### ISA 1060

5.25 inch single HP-IBSS/80

#### ISA 1015S (NEW SCSI)

3.5 inch single (HP internal FD compatible) SCSI-for HP9000 300/400/ 700/800

#### ISA 1060S (NEW SCSI)

5.25 inch single SCSI-for HP9000 300/400/ 700/800

• Memory Card • I/F Card • Floppy • Hard Disk • MO Disk • QIC Tape • DAT •

ISA, the Largest HP Enhancements Manufacturer

USA: S.E. ASIA: Texas ISA, Inc: ISAHK CO., LTD: EURISA SARL:

Tel: 713-493-9925 Tel: 330-1977 Tel: 1-48-61-48-95

HEAD OFFICE: ISA Co., Ltd. 2-4-15 Okubo Shinjuku-ku, Tokyo 169, JAPAN

Tel: 03-3208-1150 Fax: 03-3208-1335

Fax: 330-1077 Fax: 1-48-61-49-06

Fax: 713-493-2724

desktop that I've known in NewWave for years. Documents and applications are represented by icons. You can drag-anddrop documents onto applications or just double-click the document icons.

Because Chicago does not depend on MS-DOS, file names are no longer limited to eight characters. However, using a scheme similar to NewWave, Chicago maps long file names into unique eight character file names when you use existing Windows and MS-DOS applications.

Speaking of file names, you're likely to hear what we now call files referred to as objects in Chicago - more shades of NewWave. However, Chicago will store file extensions, or file types, along with the visible document name and the operating system will use a scheme much like the existing Registration Database to map applications to document types.

In the first release of Chicago, Microsoft will be giving up some of the traditional "power user" features. The Windows Recorder is likely to be missing, as well as a variety of other applications. Help will be much improved, with hypertext links between the help screen and the system utilities. For example, help on setting the system time will include a link to the Date and Time module of the Control Panel to change the time directly. This should make things easier for novices as well as for those of us who support them.

#### LOOKING FORWARD

Even further away from Chicago is Cairo, the eventual replacement for Windows NT. Don't expect to see this release until 1996. Cairo is to Windows NT what Chicago is to Windows. Like Chicago, it will feature a brand new user interface (probably one like Chicago). But like Windows NT, it will be the workgroup system that most individuals don't use at their desks. Because its release is so distant. it's hard to know just what will be included. But one thing is for certain we'll probably wonder how we got by with plain old Windows 3.1.

> -Kehoe's Internet address: kehoe@cardinal.com

Would you like to continue to see articles on this topic? Circle on reader card yes 304 no 303

## Adager for IMAGE/SQL

## The **Conventional** Way to Restructure IMAGE/SQL Databases

To meet SQL standards, IMAGE/SQL must make the end user unaware of the physical nature of the database being accessed. To achieve this, IMAGE/SQL creates tables of information about your database and your SQL-authorized users.

This information is provided by you (the creator of the database) during the "attachment" phase which is accomplished by running the program IMAGESQL.PUB.SYS.

Hewlett-Packard requires that every time you need to restructure an "attached" database, you must detach it from its DBEnvironment before it is restructured. This is impractical for the majority of your production

The problem is that, when the database is DETACHed, all of the mapping and user information which you so painstakingly entered during the attachment phase is "dropped".

HP permits you to log these commands to a file which you may use as an XEQ file during a future re-attachment. Unfortunately, this DBE log file constitutes a security risk because it is not privileged and contains information on user names and user DBOPEN passwords. You must retain this "leaky" file between database transformations. Your window of vulnerability regarding security and privacy will exist for as long as you retain this file in your system.

Consequently, you are in a double bind:

1) if you haven't kept the DBE log file, you will have to perform the attachment steps all over

2)if you have kept the DBE log file (with the security risk this implies), you may perform this

re-attachment by running
IMAGESQL.PUB.SYS and using the log file as

(Nevertheless, even this may not be totally successful. For example, if during the restructuring you changed IMAGE passwords, you will need to edit the log file before using it as an XEQ file.)

## The **Adager** Way to Restructure IMAGE/SQL Databases

Adager provides for IMAGE/SQL the same wealth of functions that Adager has provided for IMAGE and for TurboIMAGE since 1978. Under IMAGE/SQL, however, Adager transforms & maintains the database for you (as usual) and, in addition, does all the necessary internal bookkeeping to keep your database's synchrony with its SQL DBEnvironment.

There is no need for you to manually detach and re-attach your database from/to its DBE and there is no need for you to build or retain the DBE log file.

Adager does everything for you, automatically. Just as Adager obsoleted database reloads back in 1978, Adager obsoleted the SQL DBE log file in 1993.





#### **Adager Corporation**

The Adager Way, Sun Valley, Idaho 83353-0030 USA

Tel (208)726-9100 Fax (208)726-8191
Toll Free from Canada and the US: Tel (800)533-7346 Fax (800)247-7346

The Adapter/Manager for IMAGE/SQL Databases

## Pave The Way To PC Integration

# ntegrating PCs is one of the hottest topics at HP presentations.

Everyone wants to understand what it means and how to accomplish it. So, just what are the steps companies go through in order to bring in PCs and LANs? Why do they feel driven to do so? And finally, what are some things you can do to help pave the way to PC integration?

Dana Bursk of Broughton International (Cincinnati, Ohio) works directly with customers designing and installing networks. She has seen many customers evolve from absolutely nothing to complete LAN-based systems. Because this process is so common and follows the same basic steps each time, Dana has created a simple diagram called "Dana's World," to depict the integration migration. You'll probably find your own company somewhere on this LAN-based evolutionary scale.

The beginning of Dana's World shows a computer which has numerous terminals connected to its serial ports. Even though a new MPE/iX machine comes equipped with an Ethernet connection, serial ports are still the connection of choice. Even as PCs are brought into the company very little thought is given to connecting the HP 3000 to a LAN. This may seem even more surprising when you see some companies establishing depart-

mental LANs during these first few years of evolution.

Eventually in Dana's World, the users decide they need their PCs connected to the HP 3000. This may occur because they finally need access to data, or they just don't want a PC and a dumb terminal on their desk. At this point they buy a copy of WRQ's Reflection software and connect the PC to the HP 3000 using a serial connection. If a LAN does exist, it is not unusual to find users in a department sharing printers and programs from a file server, yet still have their PCs connected to the HP 3000 through a serial port.

But as businesses grow, PC users soon need access to more than one host. Like "good" users, they refuse to use hardware devices to switch their serial connection between the two hosts. After all isn't that why we have a LAN in the first place? Somewhere in this evolutionary step, the corporate purse is opened and the whole facility is finally connected together on one big LAN. Copies of WRQ's Reflection Network Series are purchased and now every PC can reach every host with ease. You have now entered the brave new world of networking, and the end of Dana's World.

As you can probably imagine a lot of money gets spent by the completion of the process. Why do companies find it important to proceed with PC integration?

The answer according to Birket Foster of M.B. Foster Associates (Chesterville, Ontario) is to get access to data which will allow them to make better decisions. He explains that users spend 80 percent of

## After A Network Problem Threatened To Shut Down His Company's Mission-Critical Applications,

#### WHAT DID DAVE DO?









hat's because there was really no reason to worry. Dave, like managers at more than 3,000 organizations around the world, knew he could depend on Unison Software's networked systems management solutions to keep not only his mission-critical applications running, but all his other processing as well. Unison's products were designed for distributed systems from the outset—redundant management platforms take over if there's a failure of the primary host or network links

to the primary. Unison Maestro, Load Balancer and Express are reliable, commercial-strength workload management products for distributed computing. Across both the network and the enterprise. On all the most popular UNIX and open systems platforms. And the products are supported by Unison's nearly 10 years of experience helping companies manage demanding commercial processing environments. So if you'd rather have your managers going to lunch instead of going berserk, call Unison Software today.



Professional always has articles on the latest in computing technology. I especially find the New Product section useful and the **UNIX** articles helpful."

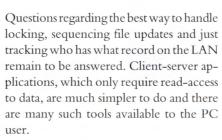
> Ferris Mahadeen, Chief Engineer, Aimco Technology



their time reading data. Only 20 percent of their time is spent updating files. Therefore users need easier access to data for decision making.

The term client-server comes to mind when you think of hooking PCs to HP 3000s. However, it is important to understand that the technology to handle client-server transactions, which updates files across networks, is still in its infancy.

Users spend
80 percent of their time reading data, and only 20 percent of their time is spent updating files.



The next problem is how to get the data from the computer system to the user. After all, the user just wants their data and generally doesn't care how it gets there. Most of us consider the installation of PCs and a LAN the only solution to this problem. Some companies though, may find a LAN too expensive. One alternative is to stick with serial connections. Fransen/King Ltd. (Fircrest, Wash.) has a product called OFFICE EXTEND which allows you to create a serial network. With this product you can share printers, back up your PCs and make the HP 3000 a server for sharing important data files.

Numerous other tools are being upgraded for the client-server future. For example M.B. Foster's DataExpress is a query tool which allows you to access HP 3000 files and either generate a report or download the results to your PC. A new version due out this year will take advantage of several enhancements in MPE/iX 5.0. Through the use of these enhancements, the new version of DataExpress can be accessed via ODBC- (Open Database Connection) compliant products running on a PC. Data from IMAGE databases, KSAM files, MPE files and Cognos Dictionary files can be accessed through products such as Microsoft Access which support ODBC. Now users can join information from a variety of sources into their applications. DataExpress also will work over serial and LAN connections.

How do you get prepared for the eventual evolution to LANs? The first way is to educate yourself and your staff about networking and PCs. Using this education, you can begin to formulate a plan. The first thing in your plan should be to prepare your infrastructure. By doing this now, you begin to reap its benefits immediately.

By infrastructure, I refer to the cabling required to support your current serial connections and future LAN requirements. Even if you are not planning a LAN, it makes sense to stop soldering wires and start using modular cabling plans. These cable plans support just about any type of network you want, as well as serial connections. If you begin to install the newer Category 5 wiring, also known as Level 5 wiring, not only will the modular connections make it easier for you, but it also will support future 100 MB Ethernet LANs. Doing it now will reduce that expense later when a LAN is close to becoming a reality.

Your company's evolution to PC integration will be one shared by many and is certainly not an easy one. Yet the benefits to getting data quickly to users makes it worthwhile.

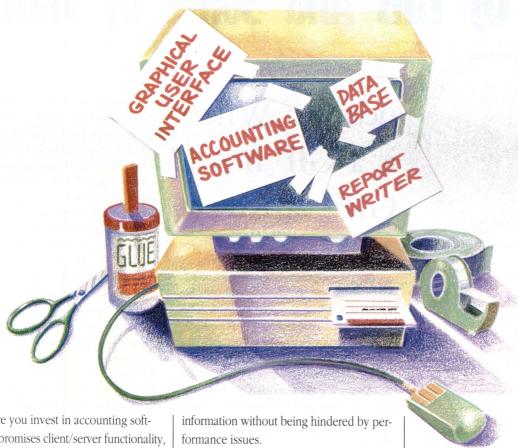
Cahoon's Internet address: cahoon@cardinal.com

Would you like to continue to see articles on this topic?

Circle on reader card

yes 310 no 309

# You Might Be Surprised By What Some Financial Management Software Vendors Mean By Client/Server Architecture.



Before you invest in accounting software that promises client/server functionality, you better be sure it isn't based on a makeshift architecture.

While most software vendors claim they have "true" client/server systems, you may be surprised to find many who simply patch front-end gadgets onto their existing accounting software and label them "client/server." The fact is that these imitation client/server systems were not designed with the flexibility to meet the diverse needs of your users or to access real-time financial

At Mitchell Humphrey & Co., there are no surprises. Our latest release, FMS II, was designed from the ground up with flexible client/server implementation and high performance as primary goals. You can choose where and how the processing will take place and still be confident FMS II will provide consistently powerful functionality.

The object-oriented design and layered architecture of FMS II is portable across the HP 3000 and HP 9000 platforms, as well

as a wide variety of data bases, networks and graphical user interfaces. Furthermore, FMS II has tools for customizing screens, menus, function keys and forms, along with powerful scripting features for automating repetitive tasks.

So, if you are looking for financial management software that has no surprises, contact Mitchell Humphrey & Co. at (800) 237-0028.

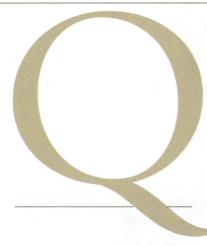
#### MITCHELL HUMPHREY & Co.

Exceptional Software for Exceptional Organizations



© 1994 Mitchell Humphrey & Co.

## Some Of This And Some Of That



#### uestion: When is a GIF not a GIF? Answer:

When it comes from a PC, of course. Turns out there are many GIF formats. If you try to take a GIF file that displays fine on all PC GIF viewers and then transfer that same file to an HP workstation, there's trouble. This is because the **imageview** idea of a GIF file is xv and xgif images. I have been told you can sometimes edit the first few characters in the file which describe the type and version of a file (such as gif 87 to gif 87a). Although I have not had much luck with this method, I am sure there are some versions you can lie about. The easiest method of viewing image files from a PC is to use the software available on the PC to convert the file to a TIFF format.

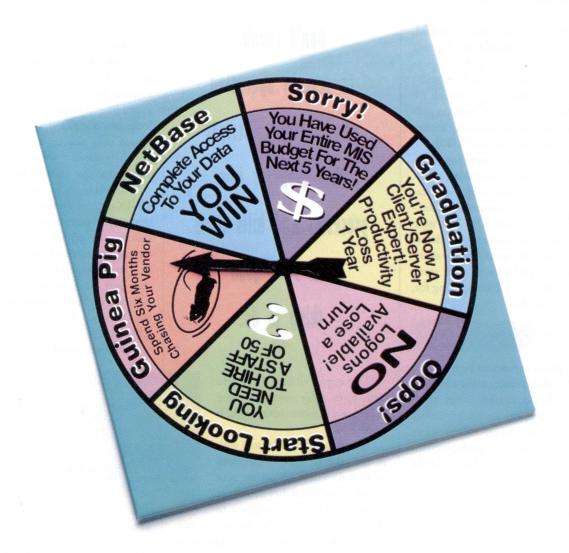
There are many packages on PCs such as scareware (shareware — free) and commercial packages that allow you to convert file formats. The advantage of using TIFF files is that the same file can be viewed with HP-UX's imageview command and most PC image viewers. Another benefit is the speed that TIFF files load at, often a 10 fold decrease in time. Be warned that some PC packages allow you to save TIFF files in several compression formats which may or may not be compatible with other systems. So, if a GIF file, when viewed with imageview, gives a "file not viewable" error message, try using a PC to convert it.

#### WHO AGAIN

I have talked about the **who** command in the past, but there is another command I was not aware of. It is much faster and gives more information. I read about it and thought "too bad HP-UX doesn't have that command." Well, it turns out it exists, but has no man page or reference to

Figure 1

| 8:07pm           | up 11:34, | 3 users, load average: 0.17, 0.11, 0.11             |
|------------------|-----------|---|
| User             | tty       | login@ idle JCPU PCPU what                          |
| fredm<br>console | console   | 10:40am 11:34 /etc/getty -h console                 |
| fredm            | ttyp1     | 10:40am 1 w   |
| fredm            | ttyp2     | 10:41am 7:53 2:34 2:34 /opt/ileaf6/hp700/bin/ileaf6 |
| real             | 0m0.33s   |   |
| user             | 0m0.02s   |   |
| sys              | 0m0.06s   |   |
|                  |           |   |
| \$ who           |           |   |
| fredm            | console   | May 26 10:40  |
| fredm            | ttyp1     | May 26 10:40  |
| fredm            | ttyp2     | May 26 10:41  |
| real             | Om1.51s   |   |
| user             | 0m0.03s   |   |
| sys              | 0m0.07s   |   |



#### Don't Leave it to Chance.

NetBase Client from Quest Software is a simple, straight forward solution to today's Client/Server demands. Your existing data becomes accessible without remote logons, expensive user fees or unnecessary

implementation chances.

As high performance networking software, NetBase Client gives UNIX, DOS, and Windows Client/Server applications complete read and write access to data residing in MPE and TurbolMAGE file systems.

MIS staffs can quickly implement applications that are tightly integrated with existing HP 3000 systems.

With NetBase Client, users win every time. Call Quest Software 714-720-1434 or e-mail: info@quests.com

QUEST SOFTWARE



**CIRCLE 268 ON READER CARD** 

it from another man page that I can find. The command is **/usr/bin/w**. Figure 1 shows a comparison of outputs.

Notice that the **w** command ran in .33 seconds, and the **who** command took 1.5 seconds. Also notice the information presented. The article I read was using a script to look for idle processes and kill them. Don't laugh, in certain operating environments that can be a good thing to do. Probably not on engineering workstations though. The **w** command uses keyboard input to determine idle. The **who** command uses screen output to determine idle. Doing the usual **strings** command against **w** provides us with some garbage, as well as what I was looking for, the usage information:

Usage: %s [ -hlsuw ] [ user ]

The **-I** option appears to be long format, which is the default, as the output is the same. The **-s** option is for short output, it does not print load information. The **-h** strips the header (good for reading with awk, sed, perl or the report generator program du jour). The **-u** gives only the summary of users, and **-w** doesn't seem to do anything, at least I can't figure it out. How about it you wizards?

#### BATCH COPIES AND MOVES

A command like: cp \*.test \*.good would be great for copying all files ending in .test to the same name but with a .good extension. Too bad it won't work. The \*.good wouldn't match anything, so the command would not work as described above. What it would do depends on the shell it was invoked in. This type of command also would be great for saving a dated version of multiple files, or moving files to another name. Well, it can be done many ways, with programming language, such as awk, sed, perl, c or the shells. The method given below is for the command line, but could have been written as a program, with all the methods given below. Adding a suffix to filenames generated with wildcards:

ls -d t\* | sed "s@.\*@cp & &.save@" | sh

Don't Laugh,
in certain operating
environments, scripts
that look for idle
processes and kills them
can be a good
thing to do.

This copies all files that begin with **t**, to a file with the same name, and a **.save** suffix. Here is how:

We created a list of names with **ls**, the **-d** is to prevent directory recursion. These names are sent to **sed**, which matches the entire name \(.\*\), then changes it to

the string **cp**, then the name that was matched &, followed by the name again with the suffix added &.save. We then pipe the output of this to the shell to be executed. In this case we used **cp**, but **mv** would work also.

Changing a suffix is similar:

ls -d \*.save | sed "s@\(.\*\)\.save@ mv & \|.new@" | sh

This changes the name of a file that ends in .save, to end in .new. For example the file test.save would now be test.new.

To test the above lines, leave off the **l sh** and the output will come to the screen for proofing.

#### YOU USED IT WHEN?

Some UNIX systems give you a command called **stat** that reports all the information that an **ls -l** gives, plus one important piece — last access time (often called last time used). This information can be rather handy, and can be gotten easily with the system call **stat**. Below is a perl

program that lists this information. Note that this could be written in C also. The program takes file names as arguments, and uses the while loop to assign the variable **\$file** to each name on the command line in sequence. Inside the while loop we use the perl function **stat** to return only the eighth field of output, which is the last accessed time. This is assigned to the variable **\$access**.

The problem is that it is returned in UNIX time, so we then use the **localtime** operator to convert it to a usable time. In this case we pulled out several pieces of the entire returned value, elements 6, 3, 5, 2, 1 and 0 which correspond to: month, day, year, hour, minute and second. Finally we perform a **write**, which will use the format defined for writing to STDOUT.

Here is a sample run of the program

above, named stat.pl:

```
$ stat/bin/etc/passwd/users/fred/hp_prof
file: was last accessed:
/bin 5/27/94 8:37:9
/etc/passwd 5/27/94 15: 5:0
/users/fred/hp_pr 3/31/69 18: 0:0
```

Note that for simplicity, no error checking was done in this program. Also notice that in the above example the pathname for the

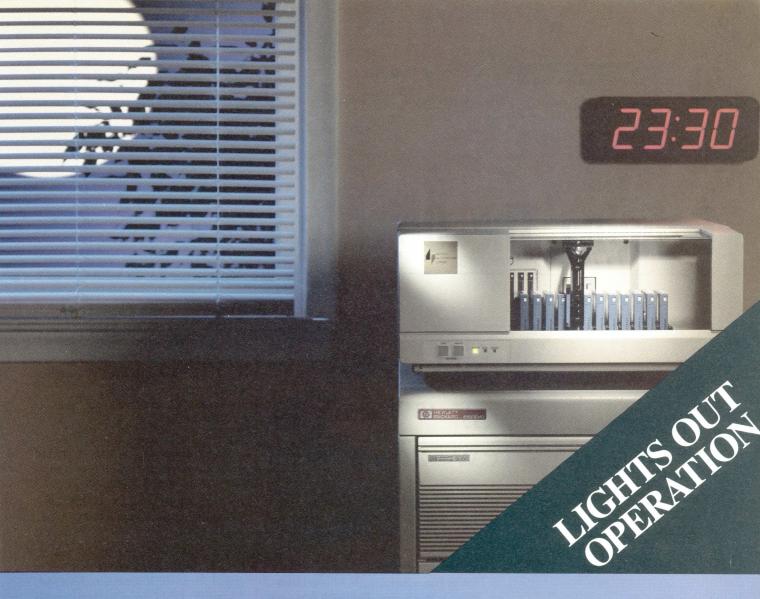
last file got truncated, because the format did not specify enough characters for long pathnames.

Mallett's Internet address: frederm@aol.com

Would you like to continue to see articles on this topic?

Circle on reader card

yes 306 no 305



#### 12 TAPE AUTOCHANGER FOR UNATTENDED BACKUP!

Herstal's DDS Autochanger provides up to 96 Gigabytes of **Unattended Backup** so you can enjoy a good night's sleep without worrying about who or what is backing up your **HP** system.

Available as an upgrade to your existing HP DDS drive, or as a subsystem containing HP's new 8 GB drive, our Autochanger is the perfect solution for your backup needs.



7414 Manatee Street Sarasota, FL 34243-1824, U.S.A. Phone: 1-813-358-2001 Fax: 1-813-358-2010

E-MAIL: SALES @ HERSTAL.COM

## Defining The Objectives

## bject technology is new, so few advocates

have the experience to declare their doctrines infallible. Fortunately, some authors are finally beginning to provide a little enlightenment. One such view appears in *Object-Oriented Modeling and Design* by James Rumbaugh, Michael Blaha, William Premerlani, Frederick Eddy and William Lorensen.

It provides a coherent discussion of an object-oriented development methodology called Object Modeling Technique (OMT). Sometimes it is called the GE-Rumbaugh method, reflecting its origins at General Electric.

OMT is independent of any programming language; it's about building objective models for analysis and design, not a "how to" for programmers. The central theme of OMT is the importance of modeling any complex application before trying to construct it because a well-designed model has a better chance of becoming a satisfactory product.

OMT offers a method for representing multiple views of a problem. Each view models the appropriate level of abstraction at any stage of the software project. By selecting the right level of abstraction, a designer can simplify design decisions early. Of course, Grady Booch has been nagging us for years about just how hard it is to select the "right level of abstraction."

Rumbaugh, et al., stress the need for more than one view of something as complex as a software product. Although different in notation, the new version of the Schlaer-Mellor method is very similar. And the Booch method has a good track record for modeling and building successful large-scale projects over a long period of time. However, OMT is unique in its approach to decomposing an object-oriented method into separate, but integrated views of a system architecture. Therefore, OMT provides three models for a software domain: the object model, the dynamic model and the functional model

The Object Model. The most important part of the OMT method, the Object Model provides the central framework into which the other models will be included. Without it, there would be no OMT. Instead, it would resemble a combination of Chen E-R diagrams melded with the Hatley-Pirbhai method. Instead, the object model is a technique for representing object classes, their relationships, attributes, shared attributes, operations and roles.

As with most software methods, one of the hardest tasks is getting comfortable with the author's symbolic notation. But learning the symbols for OMT should not be too difficult for anyone familiar with Entity-Relationship modeling. The subtleties manifest themselves in the way

## OMT presents a notation that is easy to learn and facilitates the modeling of some complex object associations.

OMT distinguishes between "roles," "associations," "qualifiers" and "link attributes." Inheritance and instantiation are pretty clear with OMT.

The basic building block of an object model is the "class object" or simply "class." Class has a name, a set of attributes and a set of operations. A class is a template for the creation of objects. Every object is an instance of some class. OMT presents a notation that is easy to learn, and facilitates the modeling of some pretty complex object associations.

The Dynamic Model. One of the key properties of a software object is its ability to change state. OMT adds the familiar State Transition Diagram (STD) to its modeling method. STDs are a familiar tool to embedded systems software engineers and the developers of OMT recognized the importance of this view for system modeling.

To accommodate real-time embedded systems, the dynamic model includes notations for event triggering, guarded state transition, initialization and finalization, and passive or active state models. In addition, the notation permits modeling concurrency, synchronization and state generalization.

The Functional Model. The authors of the book have adopted the Data Flow Diagram (DFD) and its associated constituents to represent the functional view of a system. There are object-oriented purists who denigrate this part of the method as some sort of compromise. The fact is, every model must eventually become software, and software will have a functional component, and it is useful to have a model of that functional component.

DFDs have been refined over the years as a method for modeling system functionality, and the choice to include them in OMT was probably correct. The Schlaer-Mellor method also includes DFDs. Booch rejects the DFD for several

important reasons. One reason is the temptation to use DFDs at the wrong level of abstraction. OMT emphasizes using the DFD as a low-level component of an object model, not as a substitute.

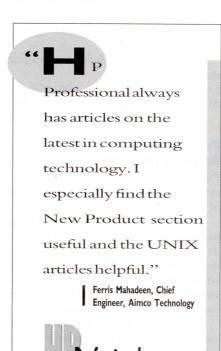
OMT permits building abstractions that map well to the application domain. However, a few application developers have told me they have trouble with mapping an OMT model to the implementation tools — the computer languages. But, as the CASE tool developers become more successful in building products to support OMT, the implementation concerns will fade away. Already, several of the OMT CASE products generate programming source code.

Riehle's Internet address: riehle@cardinal.com

Would you like to continue to see articles on this topic?

Circle on reader card

yes 308 no 307



#### Invest a stamp



#### Save a bundle

For the price of a stamp, you can get the latest edition of the federal government's free Consumer Information Catalog listing more than 200 free or low-cost government publications on topics such as federal benefits, jobs, health, housing, education, cars, and much more. Our booklets will help you save money, make money, and spend it a little more wisely.

So stamp out ignorance, and write today for the latest free **Catalog**. Send your name and address to:

Consumer Information Center Department SB Pueblo, Colorado 81009

A public service of this publication and the Consumer Information Center of the U.S. General Services Administration.

## Districts

#### **SOFTWARE**

#### DataExpress Links PDL To HP 3000 Systems

M.B. Foster announced a new version of DataExpress that interfaces with the new PowerHouse PDL dictionaries giving HP 3000 end users easy access to host-based enterprise information.

DataExpress channels information from HP host systems to client desktops, whether users access the host via PCs or terminals. The software translates HP host data into PC formats like Lotus, Excel, dBase or WordPerfect, using a consistent interface.

Support for the Cognos dictionary format, PDL, is included in release 1.73 of DataExpress. This features helps PowerHouse users make the transition to newer versions of Cognos' installed 4GL.

Contact M.B. Foster Associates, P.O. Box 580, 50 Water St., Chesterville, ON K0C 1H0; (800) 267-9377.

Circle 400 on reader card

#### **UniWorx Enhances UNIX Education Products**

UniWorx announced several product modifications to its family of UNIX education software products. New features include foreign language versions and support for HP's UNIX derivative.

The UNIX Voyager, a user-friendly training software that helps PC users learn UNIX basics, is now available in Spanish and Portuguese. Cost is \$99.

The Learning Kit For UNIX, a comprehensive operating system training program that incorporates five training modules, supports the DOS and HP platforms. The HP version will contain about 140 hours of interactive training and will cost \$1,150.

Contact UniWorx, P.O. Box 910154, San Diego, CA 92191-0154; (619) 563-1004.

Circle 399 on reader card

#### **Reasoning Systems Offers** Software Toolkit For HP

Reasoning Systems announced the availability of Software Refinery, a rapid development environment for building software analysis and conversion tools, for HP 9000/7xx workstations.

Software Refinery reduces the cost and risk of maintaining legacy systems by allowing users to develop tools that automate key maintenance tasks — for example, reverseengineering tools that help programmers understand and modify unfamiliar legacy systems; conversion tools that port code between programming languages, operation systems and databases; and quality assurance tools that pinpoint bugs and unmaintainable

Software Refinery can be applied to any programming language and maintenance task. A unit-level incremental compilation and dynamic linking provide a fast edit-compiledebug loop.

Price is \$19,600 per license with volume discounts available.

Contact Reasoning Systems, 3260 Hillview Ave., Palo Alto, CA 94304; (415) 494-6201.

Circle 398 on reader card

#### Pure Software **Releases Quantify**

Pure Software announced Quantify, a software product that identifies the portions of an application that slow down execution.

It reduces the risk of introducing performance bottlenecks throughout development; exposes the impact of individual function, library or operating system calls on your program's performance; and provides developers with the power to improve application performance.

By displaying performance in graphical and text formats, Quantify enables developers to analyze run-time execution and eliminate the guesswork involved in optimizing an application's performance.

Quantify's add-on scripts can automat-

ically compare runs to track your performance improvements or merge data from multiple runs.

Quantify supports C, C++ and FOR-TRAN.

Contact Pure Software Inc., 1309 S. Mary Ave., Sunnyvale, CA 94087; (408) 720-1600.

Circle 397 on reader card

#### **BBN Systems Provides** Speech Recognition

BBN Systems announced HARK Recognizer, a real-time, continuous speech recognition software product that runs on audio-equipped UNIX platforms. It gives spoken words the same power as input from a keyboard, mouse or other device.

Applications integrated with HARK Recognizer give end-users the power to command, control, enter and retrieve information — all by voice.

The HARK Recognizer consists of two communicating processes — the acoustic analysis process and the recognition search process.

Features include speaker independence, continuous speech, state-of-the-art algorithms, software-only product, 2,000 word active vocabulary, unlimited personal vocabularies, socket input, telephone- or microphone-quality input and a sophisticated API.

The HARK Recognizer consists of the WS150 and WS2000 (workstation application) and SRV150 and SRV2000 (telephony) series.

Contact BBN Systems, 70 Fawcett St., Cambridge, MA 02138; (617) 873-3000.

Circle 396 on reader card

#### UniSOL Delivers ODMG-Based C++ And Smalltalk

UniSQL Inc. announced the availability of two object-oriented database interfaces that support the Object Data Management Group's (ODMG) emerging specification for industrystandard C++ and Smalltalk object-oriented programming language bindings. The UniSQL C++ and UniSQL Smalltalk Interfaces let developers build mission-critical applications that take full advantage of UniSQL's object/ relational database and middleware capabilities in a way that is fully transparent to C++ and Smalltalk language environments.

UniSQL C++ Interface and UniSQL Smalltalk Interface are available for Version 2.1 of the UniSQL/X Database Management System and UniSQL/M Multidatabase System on UNIX servers running DEC OSF/1, HP-UX and IBM AIX. Pricing starts at \$1.595.

Contact UniSQL Inc., 9390 Research Bldg II, Ste. 200, Austin, TX 78759-6544; (512) 343-7383

Circle 395 on reader card

#### Simware And ADP Autonet **Provide Remote Access**

Simware Inc. and ADP Autonet signed a marketing alliance that will provide seamless remote access for mobile workers.

Simware's A2B connectivity software provides Windows-based PC users access to 3270-based corporate information systems, UNIX systems and other hosts. A2B's builtin scripting language lets users and system administrators automate dial-up and log on sequences using a point-and-click GUI. A2B has been tested for robust, error-free connections over the Autonet X.25-based virtual private network, ensuring trouble-free remote access.

Contact Simware Inc., 2 Gurdwara Rd., Ottawa, ON K2E 1A2; (613) 727-1779.

Circle 394 on reader card

#### **SETPOINT Releases CIM-Desk Software**

SETPOINT Inc. released CIM-Desk. a SETCIM layered software product providing an ad hoc tool for SQL access at the desktop. This provides an easy-to-use means of producing reports and analysis of the SETCIM data.

With CIM-Desk, a transparent interface is created between the PC application and the CIM-QL, an SQL for the SETCIM real-time database system. Data is selected by a CIM-QL query and brought transparently into the application. No knowledge of SQL is required because queries are built automatically by a point-and-click method within familiar applications such as Microsoft Excel or Lotus 1-2-3.

SETCIM is used as a process monitor, historian and controller in a variety of industries. It is available for HP-UX, DEC's VMS and OpenVMS, and IBM's AIX.

Contact SETPOINT Inc., 14701 St. Mary's Lane, Houston, TX 77079-2995; (713) 584-

Circle 393 on reader card

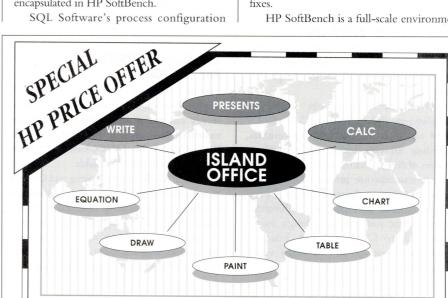
#### **SQL Software Encapsulates** PCMS In HP SoftBench

SQL Software announced that PCMS is now encapsulated in HP SoftBench.

SQL Software's process configuration

management product line enables companies to organize, manage and change their software, hardware and documentation in a well-defined and visible manner. PCMS provides a "closed loop" system by connecting defects and enhancements communicated by the Support Center to Engineering. PCMS then returns the feedback to the support area on the status of fixes.

HP SoftBench is a full-scale environment



#### IslandOffice—Leader in UNIX

"With its new version of Write, Draw & Paint Island Software provides a wellcrafted product & exceptional interface."

> UnixWorld September 1993

"IslandPresents, from Island Software is a presentation software package which provides you with a palette of color. You can apply it in a variety of ways to create slides and overhead presentations on HP 9000/700 and 800 workstations

> HP Professional November 1993

#### **Special Price** 80% savings \$272 per user!\*

\*available in 10 paks & includes Write, Draw, Paint, Presents, Calc, Table, Chart, Sound, Equation and 6 months of support (regular price \$13,595). offer expires 9/30/94 & applies to HP only.

#### Island Software Delivers for HP

IslandOffice is a proven leader in the UNIX productivity market. Why? Because it delivers what users need, when they need it, and continues delivering. through enhancements, updates, upgrades, training programs, customer support and more.

IslandOffice is Island Software's easy—to—use GUI productivity applications—Island Write, Draw & Paint, IslandPresents and IslandCalc—bundled into one cost-saving package.

Island Write, Draw & Paint is a word processing, desktop publishing & graphics application that includes IslandTable, and IslandEquation.

IslandPresents is a presentation and business graphics program. It includes IslandChart, IslandShow, IslandPaint, IslandTable and IslandSound.

*IslandCalc* is a graphical spreadsheet program which lets users create spreadsheets and 3D business graphics.

IslandOffice is available for HP 9000 Series 700 and 800 for a special NetPak price.



Call now for more information:

800-255-4499 ext.2603

Island Software Corporation 4000 Civic Center Drive San Rafael, CA 94903 TEL: (415) 491-1000 (800) 255-4499 FAX: (415) 472-0335 © 1994 Island Software. All rights reserved

#### new products

for C, C++, FORTRAN and Pascal development. It includes a comprehensive set of integrated program construction tools for developing new applications and for porting and maintaining existing applications.

Contact SQL Software, 8500 Leesburg Pike, Ste. 405, Vienna, VA 22182; (703) 760-0448.

Circle 392 on reader card

#### Harris EDA Announces **EDAvalidator Software**

Harris Electronic Design Automation Inc. (Harris EDA) announced its EDAvalidator family of software products for design data verification.

EDAvalidator interfaces with and compliments the traditional CAE/CAD/ CAM tool suites from leading vendors, providing for verification and resynchronization of design data throughout the designthrough-manufacture process. This ensures proper engineering change order (ECO) and revision control, in single- and multivendor environments, not only as a design moves from CAE to CAD to CAM, but also between different version of a design within the same department.

Harris EDA's object-oriented database, client-server process and CFI-compliant intertool communications allow EDAvalidator to work across disciplines and in multivendor environments, thereby enhancing rather than replacing a company's existing electronic design environment.

Prices start at \$15,000.

Contact Harris EDA, 7796 Victor-Mendon Rd., Fishers, NY 14453; (716) 924-9303.

Circle 391 on reader card

#### SSA Ships BPCS/AS For HP 9000s

System Software Associates Inc. (SSA) shipped Version 5.0 of its BPCS/AS clientserver enterprise information system for industrial businesses using IBM AS/400s. BPCS/AS 5.0 for UNIX-based HP 9000 business servers also is available.

BPCS/AS (Business Planning and Control System/Advanced Solution) is a software solution for industrial businesses which features more than 60 applications that cover all operations including sales, engineering, distribution, logistics, finance, manufacturing, plant maintenance and quality assurance.

Enhancements include: client-server technology foundation; a GUI; User/Vision, a graphical application that enables users to retrieve information from the enterprise database in the form of custom reports and graphs; support of eight languages; and FastPath methodology.

Prices for BPCS/AS applications range between \$1,875 and \$17,500.

Contact SSA, 500 W. Madison, Chicago, IL 60661; (312) 641-2900.

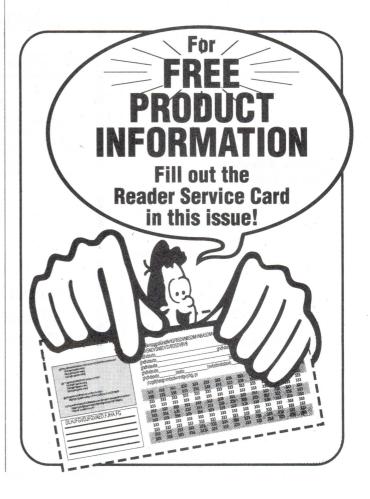
Circle 390 on reader card

#### **Novadigm And HP** Port EDM To HP-UX

HP and Novadigm Inc. announced an alliance to port Novadigm's object-oriented systems management solution, the Enterprise Desktop Manager (EDM) to the HP-UX environment.

Novadigm will develop HP-UX versions of its product line that both companies will cooperatively market. The HP-UX version further extends EDM's UNIX support, allowing systems adminstrators to use HP 9000 servers to configure and manage applications on HP-UX, Windows, DOS, OS/2 or AIX client workstations.





EDM is comprised of three components: EDM:Manager, an MVS, AIX- or HP-UX-based object-oriented server that manages application components, desktop configurations and access policy relationships in a central database repository; EDM:Administrator, a Windows-, OS/2-, AIX- or HP-UX-based systems management workstation for security, application and systems administrators to configure EDM:Manager; and EDM:Client, a Windows-, DOS-, OS/2-, AIX- or HP-UX-based desktop resident facility that synchronizes desktop contents with the current, authorized configurations in the EDM:Manager.

Pricing is \$100 per client and \$20,000 for the enterprise server.

Contact Novadigm Inc., One International Blvd., Ste. 200, Mahwah, NJ 07495; (201) 512-1000.

Circle 389 on reader card

#### Visible Systems Acquires Application Browser

Visible Systems Corp. announced the acquisition of development, marketing and support responsibilities for the Application Browser COBOL Reverse Engineering Tool from Hypersoft Corp. The Application Browser is a PC-based tool for the analysis of existing COBOL programs. Graphical representations of existing COBOL programs facilitate rapid understanding of legacy systems whose current source code may be quite different from the original documentation.

The product supports documentation and understanding of existing COBOL programs including: maintenance, functional enhancements, technology changes, architecture changes, migration to new platforms and reengineering.

Contact Visible Systems Corp., 300 Bear Hill Rd., Waltham, MA 02154; (617) 890-CASE.

Circle 388 on reader card

#### **SQL<>SECURE** Available For Client-Server

BrainTree released SQL<>SECURE for identifying security vulnerabilities and securing database passwords in client-server environments. SQL<>SECURE allows the definition and implementation of a database security policy including standards such as password length, reuse analysis, aging and "guessability." It is most valuable in environments that support client-server database applications where the host operating systems authentication (login) is bypassed.

SQL<>SECURE Database Password Manager is a collection of tools and applications that resolves the issues created by the lack of strong security measures at the database level. It is comprised of the following components: the PASSWORD CLIENT; the PASSWORD SERVER; and the PASSWORD CHECKER.

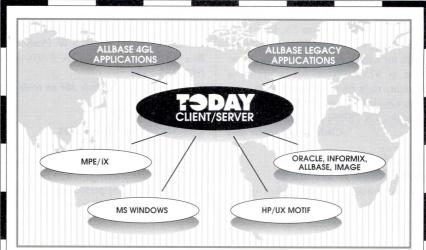
SQL<>SECURE is available for UNIX and OpenVMS systems serving clients such as PCs running Microsoft Windows or workstations in textual and X/Motif GUI interfaces. Price is \$7,500.

Contact BrainTree Technology Inc., 62 Accord Park Dr., Norwell, MA 02061-1606; (617) 982-0200.

Circle 387 on reader card

#### Quadralay Announces UDT For C/C++ VI.3

Quadralay Corp. announced the release of its UDT for C/C++ development environment, a software tool that simplifies design,



#### GET THE NEXT ALLBASE 4GL VERSION TODAY

"In a rapidly changing world of information technology, TODAY keeps us ahead with minimal application code changes. We run an integrated application on multiple platforms with no changes whatsoever. TODAY has lived up to our expectations."

> Mr. H.P.Tillmann Chief Financial Officer Diethelm & Co. Ltd Thailand

"TODAY is a great 4GL. It allows us to take advantage of client/server technology without changes to our applications. It provides us with productivity unmatched by any other product we've used."

Andy Scurto Technical Operations Manager GemData Insurance Services, Inc. San Jose, California

"Toward the Open Systems Environment, TODAY Client/Server 4GL is the best choice of Application Development Tool. It helped us to migrate in a most smooth and reliable way."

> Mr. Chen MIS Manager Yang-Ming Marine Transport Corp. Taipei, Taiwan

#### Future-Proof your Applications with TODAY Client/Server 4GL

As you move to Client/Server, there are several questions to confront regarding money, toolkits and learning curves, to name a few:

- How do I leverage the already large investment in my legacy applications? (Allbase, Image, MPE, etc.)
- What new development toolkits will be compatible with my present tools and RDBMSs?
- How can I keep fixed costs down, bring PC pricing to a mainframe shop and reduce deployment costs over time?

TODAY can migrate your Allbase applications to GUI Client/Server. Allbase 4GL was an older version of the TODAY 4GL. So your development staff is already trained.



For a free white paper call: **800-TODAY-4GL** 

CP Software Group/TODAY Systems World Headquarters 715 Sutter St. Folsom CA 95630 Tel: (916) 985–4445 Fax: (916) 985–3557

Europe Tel: +44–81–781 1842 Fax: +44–81–781 1843 Australia/New Zealand & Asia Tel: +61–3–243 2300 Fax: +61–3–243 2301

TODAY is a trademark of TODAY Systems, Inc. All other trademarks are owned by their respective companies.

#### new products

implementation, maintenance and management of C and C++ source code and documentation.

UDT for C/C++ consists of five components: a drag-and-drop tool manager that allows developers to integrate existing tools into the UDT environment easily; a powerful C++ class browser with rapid prototyping capability; a fully integrated object-oriented editor; a complete C source code browser; and a hypermedia-based source code librarian and authoring system.

It is available on HP 9000/700, SPARC SunOS 4.1.x, SPARC Solaris 2.x, Intel SCO Open Desktop, Intel Solaris 2.x and RS/6000.

Price for a single architecture right-to-use license is \$795. Price for a multiple architecture right-to-use license is \$995. Contact Quadralay Corp., 8920 Business Park Dr., Austin, TX 78759; (512) 346-9199.

Circle 385 on reader card

#### Tektronix Produces Digital Video X Terminal

Tektronix announced a networked digital video capability as one of the multimedia

features in their X server software, XpressWare version 7.0. The multimedia features — which include audio, video, imaging and graphics — are available for use with Tektronix' XP100 and XP350 series X terminals.

XpressWare V7.0 includes support for a complete suite of multimedia add-ons. Site license for XpressWare V7.0 is available for \$500 on CD ROM. Multimedia capabilities are priced per seat as follows: AudioXpress, \$200; VideoXpress, \$200; AVXpress (audio/video), \$300; ImageXpress, \$220; and PSXpress (Display PostScript/Acrobat), \$250. Contact Tektronix, 26600 S.W. Pkwy., P.O. Box 1000, Wilsonville, OR 97070-1000; (503) 685-2583.

Circle 384 on reader card

#### HIBACK/iX Offers Client-Server Backups

HICOMP announced that their backup product, HIBACK/iX, now offers full backup server functionality. STOREs and RESTOREs can be performed on MPE/iX from the following client platforms: UNIX

(HP-UX, SunOS and Solaris, DEC Ultrix, IBM AIX, Siemens SINIX, Sequent DYNIX, Silicon Graphics IRIX, Unisys SVR4, Interactive UNIX SVR4 (x86), Apollo Domain, SCO UNIX); MS-DOS and Windows; Novell NetWare, OS/2; and MPE V and MPE/iX.

HIBACK/iX can backup up those platforms to disk, tapes or DAT on the HP 3000. It makes use of multiple TCP/IP sockets to maximize network throughput.

Requirements include HIBACK/iX on the HP 3000 server running MPE/iX 4.0 or later; HIBACK on all nodes to be back up to MPE; and a working TCP/IP connection between all nodes.

Contact HICOMP America Inc., P.O. Box 22758, Houston, TX 77227-2758; (713) 626-3654.

Circle 383 on reader card

#### Algor Provides Houdini Software

Algor Inc. released Houdini, a software package that enables engineers to automatically generate eight-node "brick" finite

#### "Make the Internet Connection with CBM Books!"

A DOS User's Guide to the Internet: Email, Netnews, and File Transfer with UUCP

By James Gardner

Item # 4692 \$34.95

This book brings the power of the Internet and advanced UNIX communications software to the world of DOS Users.

#### Hands-On Internet: A Beginning Guide for PC Users

By David Sachs and Henry Stair

Item # 4693 \$29.95

This beginner's guide teaches Internet use through on-line sessions. Free commercial software included.

#### Zen and the Art of the Internet: A Beginner's Guide

By Brendan P. Kehoe

Item # 4694

\$22.00

■ This bestselling introduction to the Internet explains how to use this worldwide complex of computer networks to its fullest extent.

INTERNET: Getting Started, Updated Edition
By: April Marine, Susan Kirkpatrick, Vivian Neou, and Carol

Item # 4695

Ward, all SRI International

\$28.00

This guide covers a wide range of issues and topics of interest to beginning and intermediate Internet users.

#### INTERNET: Mailing Lists, Revised 1993 Edition

Edited by: Edward T.L. Hardie and Vivian Neou, SRI International

Item # 4696 \$29.00

This guide contains SRI's "Lists of Lists" - a comprehensive listing of the Internet special interest group mailing lists.

Distributed by CBM Books, Inc. for PTR Prentice Hall

ORDER BY PHONE: 1-800-285-1755 OR BY FAX: (215) 643-8099

| l bointge C  | RDER                                       | FOR        | RM        |                           |  |
|--|--|------------|-----------|---------------------------|--|
| Item #   | Qty.                                       | Prio       | e         | Subtota                   |  |
| Roman Java   | gallen gurte                               | tager de   |           | ar Mexic                  |  |
| 198111   | 12.115 (31.71)                             | 271-011    | 18007     | 18 - 95 2                 |  |
|  |  | 7          |           | 11/15/19                  |  |
| PA   | residents add                              | 6% sale    | es tax    |                           |  |
| -2500,500  | * Shipping                                 | and har    | ndling    | 35 1/1                    |  |
| ามายามหน้าใ  | uu aagitti                                 | la vya     | Total     | 70 - 4711                 |  |
| Check enclosed for   |  |            |           |                           |  |
|  | ecks payable to Cardino                    |            |           |                           |  |
| Charge to:   | VISA Ma:                                   | sterCard   | A         | mex                       |  |
| Account Number   |  |            | 2 11/11/2 | 115 1                     |  |
| Expiration Date _  |  | Dat        | е         | 5                         |  |
| Signature  |  |            |           |                           |  |
| Name   |  |            |           |                           |  |
| Title  |  |            |           | 0 - L                     |  |
| Company  |  |            |           | al VIOLE                  |  |
| Address  |  |            |           | f warm                    |  |
| City   | Address(Street address required) CityState |            |           |                           |  |
| Zip  |  |            |           |                           |  |
| Phone ()_  |  |            |           |                           |  |
|  |  |            |           | DPHHO                     |  |
| *UPS Shipping:<br>additional book. O<br>shipping information | utside the U.S., r                         | lease call | (215)     | 51 for each<br>643-8105 f |  |

1300 Virginia Drive, Suite 400 Fort Washington, PA 19034

Mail to: CBM Books

Services de procesiones assesses assesses

## Interex '94

Conference & Expo

HP is the definitive leader in open systems strategies today and Interex is *the* conference leader for anyone interested in HP computing solutions.

### Shared Knowledge.

Only at Interex '94 will you find the key people, state-of-the-art technologies, and innovative strategies for Open HP Systems computing. Top industry speakers, extensive tutorials, power-packed papers, hands-on sessions, roundtables and panels... from desktop to client-server, to enterprise-wide computing, it's all happening in Denver, September 18–22.

"Great learning experience! Absolutely needed to remain competitive in the IT World."

Systems Analyst Eil Lilly Industries

#### Shared Power.

#### Get in on the Action at Interex '94!

Request the information you need ...

- ✓ The full conference brochure detailing all presentations.
- ✓ A free Expo Pass (a \$50 value).

  Also gives you access to keynotes & vendor presentations!
- ✓ Information about exhibiting at Interex '94.



Call 800.interex or 408.747.0227



Fax your request to 408.747.0947



E-Mail conference@interex.org



Snail Mail P.O. Box 3439 Sunnyvale, CA 94088-3439

## If you're looking at HP systems solutions or want to make your HP system more efficient...

This is your chance to preview the latest products from hundreds of companies participating in Interex '94 Expo. Network one-on-one with vendor representatives about your specific needs. Get the information you need to make informed buying decisions.



- DENVER, COLORADO
- COLORADO CONVENTION CENTER
- SEPTEMBER 18-22, 1994

#### Announcing

The Hewlett-Packard Computing Event of the Year!



The place to be to stay on top of the HP Open Systems World.

#### WHO should attend:

Anyone and Everyone who needs to know about the future of HP computing systems:

- Information System Mgrs.
- Corporate Management
- Buyers & Resellers
- HP Users/Personnel
- Network Mgrs.
- Developers
- System Integrators
- Service Providers

New This Year

**Open Systems &** 

**Client-Server Showcase** 

This showcase, featuring live demos, will give you an opportunity to see a fully integrated enterprise-wise, open client-server solutions in action.



The International Association of Hewlett-Packard Computing Professionals

#### new products

elements direction from virtually any CAD solid modeling source, including HP 9000 Series 700s.

Houdini uses Algor's proprietary Merlin mesh enhancement technology to create a high quality surface mesh of highly regular quadrilaterals from a CAD solid mesh. The Merlin mesh then drives Algor's Hexagen software, a fully automatic eight-node "brick" mesh generator.

Houdini works with several CAD/CAM design systems including Pro/ENGINEER, AutoCAD, Aries, Unigraphics, Cadkey, Catia, SDRC and Intergraph.

Contact Algor Inc., 150 Beta Dr., Pittsburgh, PA 15238; (412) 967-2700.

Circle 375 on reader card

#### **Integrated Systems** Offers ESp Products

Integrated Systems announced the ESp visual debugging and analysis tool which allows programmers to see the complex interactions of multitasking pSOS applications not possible with previous generation debugging tools.

Using representative icons, programmers



The ESp Analyzer Window helps developers accurately pinpoint code problems.

can customize displays to various levels of detail, see the state of each task, trace its execution and identify where and when events occurred.

The ESp visual debugging tool supports pSOS+ and pSOS+m embedded real-time kernels. The software acts as a target resident agent, collecting and relaying information about the kernels' behavior over a networked or serial connection.

ESp graphically displays pSOSystem component configurations, memory usage and errors, kernel object inventories, userspecified events and CPU use graphs. Contact Integrated Systems, 3260 Jay St., Santa Clara, CA 95054-3309; (408) 980-

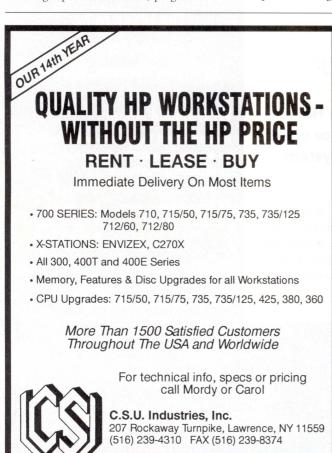
Circle 374 on reader card

#### O'PIN Systems Updates REVEAL For HP 3000s

O'PIN Systems announced REVEAL 3000 Version 3.3, a new version of its paperless reporting software for the HP 3000. Enhancements include wildcard and rational searching, faster printing with terminal I/O and a means to track report usage, printing and disk space.

REVEAL enables users to view and use online reports from any PC terminal linked to a system, thereby eliminating much of the expense and handling inefficiencies associated with paper-based reporting. REVEAL's Pinpoint distribution module, ensures that users gain access only to those reports and report pages they need and are authorized to

REVEAL runs on the HP 3000, MPE V





or MPE/XL and requires an HP or compatible terminal, or a PC that runs terminal emulation software. Current REVEAL users with in-force maintenance agreements may upgrade to version 3.3 at no extra charge.

Contact O'PIN Systems, International Plaza, Ste. 635, 7900 International Dr., Bloomington, MN 55425; (612) 854-3360.

Circle 373 on reader card

#### Locus Adds Features To PC-To-UNIX Integration

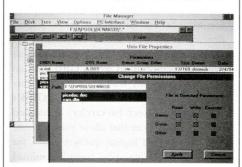
Locus Computing Corp. announced the addition of networking features for its PC Interface products — PC Interface 5.0 and PC Interface Plus 2.0 — which provide transparent gateway access to enterprise services from a single UNIX server.

The new networking features include support for a Windows-based implementation of ftp, local, enterprise-wide and Internet Email, file and print sharing, NetWare and Windows for Workgroups co-existence, and enhanced support for Windows desktop systems.

The complete PC-Interface 5.0 package

is \$279. PC Interface Plus 2.0 is \$449. Contact Locus Computing Corp., 9800 La Cienega Blvd., Inglewood, CA 90301-440; (310) 670-6500.

Circle 372 on reader card



PC-Interface 5.0 shows DOS, Windows, Macintosh and UNIX files as networked disk drives in the Files Manager.

#### Infonet X.400 Messenger Ported To HP 9000/800

Infonet Software Solutions (formerly OSIware) and HP announced that they are working to integrate HP OpenMail and

Infonet's X.400-based Messenger 400 storeand-forward server software. The products will connect users of Microsoft Mail, Lotus cc:Mail and Lotus Notes in a single enterprise messaging system.

The integrated mail system will provide advanced routing, standards-based directory services, reliability and scalability to support thousands of mailboxes. Infonet will distribute HP OpenMail through its systems integrators and resellers in North America and throughout the world.

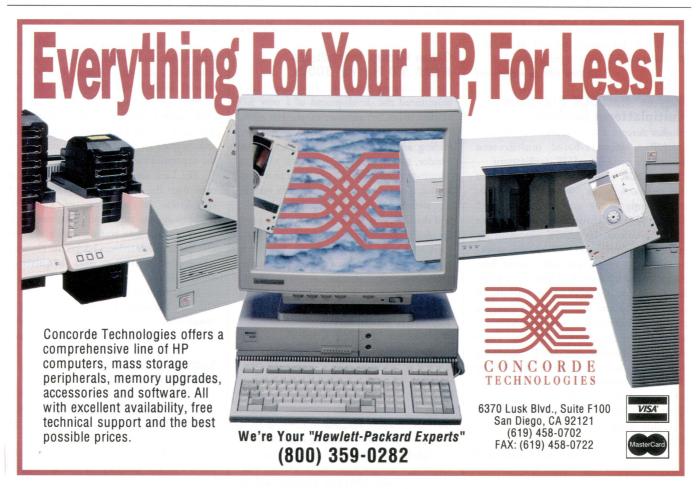
Contact Infonet Software Solutions Inc., 4400 Dominion St., Ste. 210, Burnaby, BC V5G 4G3; (604) 436-2922.

Circle 371 on reader card

#### FASTCopy Speeds Software Transfer

API International announced FASTCopy, a backbone network engine that speeds software transfer up to 10 times over networks and guarantees software delivery for distributed client-server operations. FASTCopy works over TCP/IP networks.

FASTCopy offers a reliable "deliver and trigger" backbone for batch-oriented



applications. Using dynamic, client-server enabling technology, FASTCopy lets a company's mobile and remote users make complete use of networked applications.

FASTCopy is available as network engine software or included with integration services from API International.

Contact API International, P.O. Box 91027, Austin, TX 78709; (512) 280-4391.

Circle 370 on reader card

#### Fel Computing Ships LANlink-TCP 4.0

Fel Computing shipped LANlink-TCP 4.0, which connects PC LANs to TCP/IP networks. LANlink-TCP makes it possible to have just one IP address per PC LAN. The product also allows individual user IP addresses to be assigned in situations that require it.

Applications included with the current release allow terminal, file and printer access to TCP/IP networks. A Telnet program provides 3270 emulation while a VT100 terminal emulator provides access to a wide range of systems. LANlink-TCP supports Novell NetWare, Banyan VINES, Microsoft LAN Manager and most PC LANs. All LAN technologies are also supported including Ethernet, Token Ring and Arcnet.

Contact Fel Computing, 10 Main St., Williamsville, VT 05362; (800) 639-4110

Circle 369 on reader card

#### Hughes' NetLOCK Broadens Multiplatform Security

Hughes Aircraft Co. announced NetLOCK for HP, a software-based, multilayered security for networks of HP workstations.

NetLOCK is installed at the IP layer of the network stack, where it operates transparently to the user and applications. When workstations initiate private communications, NetLOCK automatically generates a public key, which the workstations share to encrypt and decrypt data. Keys are valid for a specified time. After traffic key negotiation, the workstations authenticate themselves to one another by exchanging digitally signed certificates of authentication, at which time data transfers will occur. Once the data is transmitted, NetLOCK inspects the data for alterations by performing security checks and notifies the administrator if a security breach occurred.

Contact Hughes Aircraft Co., Systems Sector, P.O. Box 3310, Fullerton, CA 92634; (714) 732-5352.

Circle 360 on reader card

#### Blackboard Technology Announces GBB V3.0

Blackboard Technology Group Inc. announced the availability of GBB version 3.0.

Included in GBB V3.0 are: a graphics toolkit, called ChalkBox, that allows developers to easily create object-oriented GUIs that are source code compatible on all hardware platforms on which GBB runs; an event mechanism, which adds an object-oriented event hierarchy to GBB's blackboard-object hierarchy; enhanced retrieval capabilities that allow you to create arbitrarily nested logical query patterns for GBB's high-performance, multidimensional object database; and enhanced tracing and metering capabilities for monitoring applications.

GBB is available for the following platforms: DEC, HP, IBM RS/6000, Silicon Graphics and Sun, as well as Lisp workstations from Symbolics and Texas Instruments.

Price is \$10,000 for most single-processor workstations and \$5,000 for PCs and Macintoshes.

Contact Blackboard Technology Group Inc., 401 Main St., Amherst, MA 01002; (413) 256-8990.

Circle 359 on reader card

#### Orion Group Introduces MCBA 5.0 For HP 3000s

Orion Group Software Engineers Inc. announced the development of a new 5.0 version of MCBA software for the HP 3000.

Features of MCBA OG-5.0 include: adding an unlimited comment screen to vendor, customer and item screens; adding a "reminders" function to the system to display logons; fixing some remaining bugs in version 4.5; two extra fields with user defined labels; and the ability to put a job number on print spooled reports screen.

Contact Orion Group Software Engineers Inc., 20 E. 91st. St., Ste. 200, Indianapolis, IN 46240; (317) 846-1780.

Circle 358 on reader card

#### ParaSoft Announces Insight++ 2.0 for C++

ParaSoft Corp. announced Insight++ for C++ 2.0, the latest release of its automatic, run-time debugger. Insight++ identifies bugs specific to C++ (distinguishing between new, delete, malloc and free). Insight++ supports the latest features available in C++, such as templates, exception handling and RTTI.

Utilities included with Insight++ include: Invision, a unique algorithm validation tool; InUse, a graphical "Malloc Monitor" which helps in understanding how a program manipulates memory by graphically displaying how it allocates and frees memory as it runs; and Total Coverage Analysis (TCA) which provides information about which pieces of code have been tested, how much code was tested and how many times different code blocks were executed.

Insight++ is available for the HP 9000, IBM RS/6000, Sun SPARC, DEC and SGI platforms. Pricing begins at \$1,495 for a three-user license.

Contact ParaSoft Corp., 2500 E. Foothill Blvd., Pasadena, CA 91107-3464; (818) 792-9941.

Circle 368 on reader card

#### **HARDWARE**

#### Ultralink Provides Slotless ISA Bus Expander

Ultralink Inc. announced Ultralink Model 120, which consists of a single PC card and cable which connect a passive ISA backplane to a host PC's parallel printer port. This link allows use of the wide range of data acquisition, control and peripheral I/O cards available for the ISA bus without use of internal expansion slots.

The Link operates with Centronics-compatible and enhanced parallel printer adapters at data rates up to 100 KB per second. Both 8 and 16 bit ISA I/O data transfers are supported. Up to 16 ISA I/O cards can be installed in the passive backplane. The Link incorporates logic which expands address space and interrupt levels available on the expansion backplane.

The Link allows insertion or removal of cards from the expansion backplane without shutdown or opening of the PC. Additionally, the expansion backplane is only active during data transfers with resident I/O cards which reduces backplane electrical noise for sensitive data acquisition applications.

Single units of Link cost \$159.

Contact Ultralink Inc., P.O. Box 1809, Minden, NV 89432-1809; (702) 782-9758.

Circle 382 on reader card

#### Lantronix Releases LTX-TA And LTX-2A

Lantronix announced two miniature Ethernet transceivers — the LTX-TA for connecting to twisted-pair media, and the LTX-2A for thin coax

The LTX-TA (for 10Base-T networks) offers a switch-selectable heartbeat function, automatic polarity correction, LEDs for

Power and Good Link indications, and an RJ45 network interface.

The LTX-2A (for 10Base-2 networks) also has a switch-selectable heartbeat, plus a single LED (for Power) and a BNC barrel connector for its media interface.

Contact Lantronix, 15353 Barranca Pkwy., Irvine, CA 92718; (714) 453-3990.

Circle 381 on reader card

#### Telebyte Provides Model 431 Modem

Telebyte Technology introduced its Model 431 Synchronous High Speed Short Haul Modem which provides high-speed data transfer over 6 Km on a single twisted pair. Isolated LANs can be connected, on a dedicated basis, via a pair of Model 431s and a single twisted cable pair supplied by the local telephone company.

The Model 431 uses ISDN technology and its associated 2B+D signalling techniques to provide full duplex operation up to 128 Kbps. The output of the modem is an ISDN U interface circuit that employs adaptive echo cancellation and data scrambler.

The Model 431 allows a control signal to be sent on the RTS (Request-To-Send) pin and received on the CTS (Clear-To-Send) pin of the interface.

Dip switches allowing selection of one of seven rates with selection of internal or external clock. The analog line interface is provided on terminals and an RJ-11 connector. Transmission distance is independent of data rate and strictly a function of wire gauge.

Contact Telebyte Technology Inc., 270 Pulaski Rd., Greenlawn, NY 11740; (516) 423-3232.

Circle 380 on reader card

#### **Boca Offers The BGM64 PCMCIA Diagnostic Card**

Boca Technology Group Inc. announced the BGM64 PCMCIA Diagnostic Card, a universal PCMCIA interface diagnostic device. The BGM64 plugs into a PCMCIA compatible slot and allows wrapping the data and address bus through the PCMCIA interface. PCMCIA Host software allows testing of all 16 bits of data on an emulated 64 MB address space.

PCMCIA Host software algorithms which exercise the BGM64 will detect opens and shorts on the data and address bus. The proper functioning of the attribute memory also can be tested.

The PCMCIA Diagnostic Card also

allows thorough testing for 5v and 12v Vpp power supply compliance.

Individual BGM64 Diagnostic Cards are priced at \$249. The Developers Kit is priced at \$4,500.

Contact Boca Technology Group Inc., 21346 St. Andrews Blvd., Ste. 219, Boca Raton, FL 33433; (407) 750-1528.

Circle 379 on reader card

#### HP, SSSI Introduce HP 700/70 Terminal

HP and Structured Software Solutions Inc. (SSSI) announced the HP 700/70 Windowing Terminal, a UNIX-based terminal that offers windowing capabilities for running multiple application sessions simultaneously.

The HP 700/70 Windowing Terminal

#### "ALL BACKUP AND RECOVERY SYSTEMS ARE THE SAME"



Former corporate network administrator

The more you know about network management, the more you know there can be significant differences between one backup software package and another. Differences that can result in substantial losses of time and money. Maybe even data.

Quick Restore"
Data Backup and
Recovery Software.

Why not choose a backup system with the same qualities that first attracted you to UNIX°? Our Quick Restore data backup and recovery software is designed for use in today's multi-platform open systems environment.

Built around industry standards and conventions, QR doesn't have the overhead and inflexibility that comes with proprietary systems.

QR controls data backup and recovery from any point in the network without using NFS. Its on-line indexing, automatic volume location and direct-to-block positioning help you locate and restore your data fast. Our ISO-compliant recording format allows users to recover backed up data without QR installed. And QR's GUI and command-line interfaces give you the power and flexibility to manage your network both on-site and remotely.

QR is easy to use. No needless bells. No useless whistles. Just solid, reliable backup and recovery software to help you manage your network effectively. At Workstation Solutions we do network backup. And we do it well.

#### We even back up your backups.

When you have a question, you'll appreciate the difference between reaching a distant voice on the phone and reaching someone who understands. Our knowledgeable support staff is here to offer advice and answer your questions

To evaluate how QR can make a difference for you, give us a call at 1-800-487-0080 ext. 166.

with clear, concise technical information.

All company and product names are trademark by their respective owners. workstation solutions, inc. one overlook drive Y amherst nh 03031 Y 603.880.0080 Y fax 603.880.0696



#### new products

works with UNIX-based hosts from HP, IBM, Sun, DEC, SCO and UNIX-based PCs.

Fully compatible with ANSI text terminals and the "alpha window" terminal standard, the HP 700/70 is intended for transaction processing, customer service claims processing and applications in which the text terminals are commonly used.

The HP 700/70 comes with a license for SSSI's FacetTerm window management software, a 14-inch monochrome display, keyboard, user's manual and power cord; a mouse is optional.

The windowing system includes pull-down menus, scroll bars, icons and the ability to easily copy and paste data between individual windows. Users can maximize a window to a full-screen-sized display or minimize windows as icons.

FacetTerm allows users to run up to six software applications or connections to networked UNIX-based hosts simultaneously.

The HP 700/70 Windowing Terminal is available in base configuration for \$499. An MPR-II compliant version costs \$549. The

optional mouse is \$30 and the Model 700/60 to 700/70 upgrade kit is \$69.

#### Todd Enterprises Inc. Offers The CD-R CUBE



The CD-R CUBE creates CD-ROM disks from files or scanned images.

Todd Enterprises announced the CD-R CUBE, a desktop processing system for CD replication. It creates CD-ROM disks from files or scanned images.

The CD-R CUBE contains a Yamaha CD quad speaker recorder/player as well as

an Intel Pentium CPU with 8 megs of RAM and a PCI bus; a 120 meg IDE system drive, a 3.5-inch floppy drive; a doublespeed multisession CD-ROM drive; a 1 GB dockable data drive with Keylock; and a SuperVGA 14-inch monitor, keyboard and mouse. It also comes preloaded with DOS 6.2, Windows 3.1 and easy-to-use Gear CD mastering software.

Contact Todd Enterprises Inc., 224-49 67th Ave., Bayside, NY 11364; (718) 343-1040.

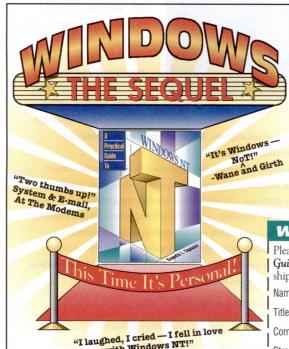
Circle 378 on reader card

#### Amdahl Corp. Debuts Xplorer 2000 Series

Amdahl Corp. announced the Xplorer 2000 Series of massively parallel processing database servers.

The Xplorer 2000 Series — Model 50 and Model 100 — integrates massively parallel processing hardware from nCUBE with Oracle 7 parallel server relational database software.

The Xplorer 2000 can be configured as System/390 channel-attached, database offload processing for DB2 dynamic SQL queries. It can be accessed through System/



with Windows NT!

Use the coupon to order. For immediate service,

call (215) 957-4265 or FAX (215) 957-1050.

Vindows NT has premiered and it's getting rave reviews. To get up and running on this new computing environment quickly and easily, you'll need a guide. . . a practical guide.

A Practical Guide To Windows NT is the first authoritative word on Windows NT. Managers, administrators, MIS personnel and users will find this guide an indispensable reference.

- Focuses on efficient and effective management of the application
- Features chapters on installation, choosing the right platform, and security
- Discusses the future of Windows
- And much more. . .

Windows NT is coming to a computer near you! Don't be left without a ticket to the hottest show in town. Order your copy of A Practical Guide to Windows NT today!

#### **WINDOWS NT Order Form**

| Please send me copy(ies) of <b>A Practical</b>   <b>Guide To Windows NT</b> at \$25 each, plus UPS shipping.* PA residents add 6% sales tax. | Check Enclosed (Make checks payable to Cardinal Business Media, Inc.) |  |  |
|--|---|--|--|
| Name   | Charge to:  |  |  |
| Title  | VISA MasterCard American Express                                      |  |  |
| Company  | Acct. #   |  |  |
| Company  | Exp. Date   |  |  |
| Street Address   | Signature   |  |  |
| City   |   |  |  |
| State/Zip  | Date  |  |  |

Check here for a FREE CBM Books catalog.

| Mail To: CBM Books              |         |
|---------------------------------|---------|
| P.O. Box 446  Horsham, PA 19044 | PHH0894 |

\*UPS shipping: In the U.S., \$4 for the first book, \$1 for each additional book. Outside the U.S., please call (215) 957-4265 for shipping information.

#### Reader Information

This month's issue contains many advertisements for hardware and software products available for your HP systems. Your investment in these products today could mean a more lucrative future for your company. Use the information below to learn more about the advertisers' offerings, then use the reader information card to initiate your direct link to valuable information about these advertisers' products.

#### AGER

dapter/Manager for IMAGE/3000 databases allows inpulation of database objects with a wealth of action.

#### RSEN CONSULTING WARE PRODUCTS LE 174

pc-PAC integrates manufacturing, distribution and ace into a single online management system. The ware supports a discrete, just-in-time/repetitive, make-order, job shop or a combination of these manufacturing vironments. Mutilanguage and multicurrency features wide the capabilities necessary to keep pace with a niging global marketplace. With expert systems inology, our patended Expert Configurator captures the wledge of your employees to control sales order entry, ng and manufacturing.

(800) 541-7512 or (312) 307-6588.

#### TECON INC. CLE 242

on is a leading systems integrator and manufacturer of -added hardware and software products for the UNIX etplace. Product lines include: Opticals, Removables, tups, Storage and Accessories.

(800) USA-ARTE, FAX (619) 931-5527.

#### 1 SOFTWARE PRODUCTS CORP. CLE 103

/Cornerstone, exploratory data analysis software for X workstations. It's easier to use than a spreadsheet to re data because it integrates data access, visualization, sis and presentation of results. Call (617) 873-5000.

#### ING INDUSTRIES CLE 105

ovable mass storage solutions, including hard disk magneto-optical erasable drives, and high-capacity ackup for HP 3000/9000/1000 computers. 800) 237-4641, (408) 379-6900.

#### DMARK TECHNOLOGIES INC. CLE 108

rtotal HP 3000/IMAGE database solutions that includes GENERAL, the most complete general-purpose database ty available in the HP 3000 market. And SUPERDEX, fully compatible indexing package that provides redented data retrieval speed and flexibility. Both are us why Bradmark is committed to provide premier data gement solutions. Call (800) ASK-BRAD.

#### PUTER MARKETING TERNATIONAL INC. IRCLE 454

Adependent distributor of new and refurbished HP Apollo porkstations and peripherals. We provide in-house technical apport and depot repair services. We are committed to roviding 100% customer satisfaction on every order. Call 800-497-4CMI.

#### CONCORDE TECHNOLOGIES CIRCLE 232

Broad line of HP mass storage (disk, tape, optical) and RAM memory upgrades for HP, Apollo, DEC, SUN, RS/6000 and Silicon Graphics computers. Best prices, availability, warranty and support. Call 1-800-359-0282 for complete information and pricing.

#### GE RENTAL/LEASE CIRCLE 464

GE Rental/Lease provides the benefits of short-and longterm rental and leasing of workstations PCs, notebooks, accessories and multimedia equipment from manufacturers like HP, Sun, Silicon Graphics, Tadpole and more! Save working capital on the latest technology with overnight, nationwide delivery and convenient toll-free ordering! We can provide customized equipment solutions like Sun's SAPRC station 10 models 512MP, 402MP, 51, 40, 41 and SPARCserver 1000s. Call (800) GE-RENTS.

#### HERSTAL AUTOMATION LTD. CIRCLE 173

Reasonably priced data storage subsystems with performance in mind. Call (313) 548-2001.

#### IEM INC. CIRCLE 122

IEM is the manufacturer of the largest line of HP third-party peripherals. IEM offers affordable solutions for the HP environment. IEM's product line includes 4mm tape drives and autofeeders, 8mm tape drives, autofeeders and carousels, QIC tape drives, optical drives (WORM, MOD, Multifunction and CD-ROM), fixed winchester drives, floppy disk drives, combination drives and more. Most IEM products are available with either an HP-IB or SCSI interface for HP 1000, 3000 and 9000 computers. IEM also offers a number of unique software solutions, including an automated backup and archive program.

Call (303) 221-3005 or (800) 321-4671.

#### INFORMATION BUILDERS INC. CIRCLE 247

4GL/DBMS for HP MPE/XL and HP-UX systems offering application development, reporting and decision support. Supported on all major platforms. Call (212) 736-4433.

#### ISLAND SOFTWARE CIRCLE 260

Island Softeare offers a suite of award-winning office productivity tools for UNIX workstation users. The Island Productivity Series includes Write, Draw & Paint, Island presents, Island Calc and a number of associate tools. Island's products productivity/groupware market. Call (415) 491-1000

#### KINGSTON TECHNOLOGY CORP. CIRCLE 281

Kingston Technology designs and manufactures memory upgrades for PCs, laptops, workstations and laser printers. The Kingston product line also features mass storage subsystems and processor upgrades. Call (800) 835-2545, FAX (714) 435-2699.

#### MINISOFT INC. CIRCLE 472

Minisoft 92 for DOS and Windows providing HP terminal emulation and LAN connectivity for just \$129. Call (800) 682-0200.

#### NEWPORT DIGITAL CORP. CIRCLE 246

Accelerator cards for HP 9000 Series 200 plus HP 310 and HP 320. Ten-fold performance improvement. Call (714) 730-3644.

#### PURE SOFTWARE INC. CIRCLE 123

Pure Software offers a family of products to help C/C++ UNIX developers create higher quality applications, faster. Quantify pinpoints performance bottlenecks created during development. Also from Pure Software, Purify helps developers elimenate run-time errors that cause system crashes. Call (800) 353-7873.

#### PERICOM INC. CIRCLE 214

Pericom Inc. is a supplier of terminal emulations software for MS-Windows and the X Windows environment. Some of our emulations include DEC VT820-840 and 420, Tektronix color graphic terminals, Prime, Data General, and Tandem. Call (714) 730-3644.

#### QUEST SOFTWARE CIRCLE 268

The only complete HP 3000 solution for

- 1) High-speed network file and database access.
- 2) IMAGE, KSAM and MPE file shadowing.
- 3) Low overhead and network spooling.

Call (714) 720-1434.

#### TODAY SYSTEMS CIRCLE 153

TODAY Systems offers a powerful, rules-based 4GL development environment which give application developers a unique combination of power, portability and performance. TODAY incorporates a screen builder and menu manager, a report writer, a fourth generation language, a macro recorder/scritpting system, version control and knowledge edge base system-all controled by an integrated data dictionary/repository. Seamless support for any combiantion of ISAM files and many popular databases is provided. Call (800) TODAY-4GL

#### TRYONICS INC. CIRCLE 477

Tryonics Inc. is a provider of quality remanufactured HP Apollo, Apollo Domain series workstations, spare parts, network and software consulting services.

Call (603) 427-6850.

#### UNISON-TYMLABS INC. CIRCLE 499

Unison-Tymlabs is a supplier of networked systems management solutions for both UNIX and MPE. Product areas include workload management, storage management, print automation and desktop integration.

Call (408) 245–3000.

#### WORKSTATION SOLUTIONS INC. CIRCLE 253

Quick Restore V2 is high performance software for backup and recovery. Includes easy to use GUI and support for multiplatforms and all popular tape formats.

#### WRQ (WALKER RICHER & QUINN) CIRCLE 263

Makers of Reflection Series Software. HP terminal emulation for PCs and Macintoshes. Call (800) 872-2829.



PASS THE WORD — SAY YOU SAW IT IN HP PROFESSIONAL

390-compatible processors through as many as eight System/390 channels. It also can be accessed through SQL calls from LAN-based, client-server environments, via Ethernet connection or an FDDI backbone LAN.

The Model 50 is configured with 32 to 64 processor nodes and 10 to 80 GB of disk storage. Processor nodes can be added in 16-node increments and disk storage can be added in 10-GB increments. The Model 100 is configured with 64 to 512 processor nodes and 48 to 1,176 GB of storage. Processor nodes can be added in 32-node increments and disk storage in 12-GB increments.

Contact Amdahl Corp., 1250 E. Arques Ave., P.O. Box 3470, Sunnyvale, CA 94088-3470; (408) 746-6000.

Circle 377 on reader card

#### Concorde Offers 4mm DAT Tape Drives

Concorde Technologies Inc. introduced a family of high-performance 4mm DAT tape drives and tape autochangers. Incorporating second generation DDS-2 storage technology, the drives used in this family of products provide twice the storage capacity of previously available DAT drives. The drives support 4 GB of native mode storage and over 8 GB (typical) of compressed storage per tape cartridge. Autochanger models provide an automated unattended solution to the storage and retrieval of up to 600 GB of data.

Concorde's DAT drives provided 510 KB per second native transfer rate. The burst transfer rate of the new 4mm has improved to 3 MB per second asynchronous and 7.5 MB per second synchronous. Both the high speed cartridge swaps and the fast search capability enable the autochanger versions to deliver a random tape cartridge file access averaging only 90 seconds.

Each model supports all major UNIX platforms and operating systems including HP 9000, Sun, Auspex, IBM RS/6000, DEC and Silicon Graphics via the standard SCSI-2 interface.

The product family consists of a single 4 GB drive — Model HPT4000DC — and three autochanger models — the Model HPT4800CD, Model ADT4MMDC and Model SLT4000CD.

Contact Concorde Technologies Inc., 6370 Lusk Blvd., Ste. F100, San Diego, CA 92121; (619) 458-0702.

Circle 376 on reader card

#### NetFRAME Announces Data|ET III

NetFRAME Systems introduced DataJET III, an easy-to-use backup and restore system for EISA-based NetWare servers featuring RAID 5 fault tolerance. DataJet III is a three DAT drive tape array controlled by a multithreaded NLM that guarantees native backup speeds of 3 GB per hour.

DataJet III backs-up the entire server while giving users the flexibility of restoring individual files. DataJet's menu-driven system, offering only six choices, has been designed to eliminate operator errors. DataJet III is a complete turnkey solution consisting of tape array with three tape drives housed in a compact chassis, a DataJET NLM residing on the server and an EISA SCSI adapter. Price is \$14,995.

Contact NetFRAME Systems Inc., 1545 Barber Lane, Milpitas, CA 95035; (408) 383-4515.

Circle 367 on reader card

#### American Digital Systems Introduces RAPS

American Digital Systems introduced Redundant Arrays of Power Supplies (RAPS), a power supply system that improves storage system reliability up to 3200 percent. RAPS uses multiple power supplies with inherently reliable disk drives to achieve fault-tolerance levels much higher than traditional storage systems and without the expense of RAID implementations.

RAPS is incorporated into American Digital Systems' MasterDisk storage subsystem. RAPS supports each disk with its own dedicated power supply. If one of the dedicated power supplies fail, another one takes over. The reliability of the power supply array rises from 25,000 hours to more than 1 million hours.

Contact American Digital Systems Inc., 490 Boston Post Rd., Sudbury, MA 01776; (508) 443-7711.

Circle 366 on reader card

#### Nupon Enhances LTS Series Servers

Nupon Computing Corp. announced that a faster dual processing chipset and improved software have increased the speed of their LTS Series Communications Servers.

The LTS Communications Server Version 1.2 uses an Intel 80386SX-20 and a Cirrus Logic CL-CD 180 communications processor to boost throughput from 38.4 Kbps to 64 Kbps.

Improved software includes dynamic Routing Information Protocol, automatic ondemand dialing, dial-back security and a DOS-based installation program.

The LTS Servers combine the functions of a dial-up router with remote access capabilities, terminal server, printer server and modem server. They can be configured vothree protocols: Novell IPX, TCP/IP. DEC LAT.

Prices vary depending on the number ports needed.

Contact Nupon Computing Corp., 12 Warner Ave., Ste. A, Tustin, CA 9266 (714) 258-8622.

Circle 365 on reader car

#### IDE Expands Multi II/III Family

International Data Engineering Inc. (ID announced a new family of high-capa multifunction optical jukebox devices. T Multi II/III systems provide an average load time of 1.8 to 2.5 seconds.

The Multi II/III series gives the flexibit to add from two to six full-height or height drives and offers capacities rangifrom 119 GB to 270 GB.

The Multi II/III systems can be a figured with write-once, multifunction erasable optical disk drives produced by IBM Maxoptic, Panasonic, Plasmon I Systems, Ricoh or Sony.

Prices start at \$33,900 for the Multi II. \$44,900 for the Multi III.

Contact IDE, 7727 Washington Ave. Minneapolis, MN 55439; (612) 946-41

Circle 364 on reader

#### Pulizzi Releases Auto Transformers

Pulizzi Engineering Inc. released a new of Auto Transformers.

The Step-Down Auto-Transformer, Mc SDC 2102 reduces the operating voltage fr an input of 200-250VAC, single phase to a output of 100-125VAC, single phase a maximum of 750VA. It has six NEMA 5-15N outlets, and is protected with a two-pole, 10 amp magnetic toggle circuit breaker. Input is via a six foot cable (AWG 18/3) without a plug, allowing the customer to select the correct termination for his application.

The Step-Up Auto-Transformer, Model SUC 2103 also is available. This system increased the operating voltage from an input of 100-125VAC, single phase to 200-250VAC, single phase at maximum of 750VA. This optional version comes with six NEMA 6-15R outlets which are protected by a 15 amp magnetic toggle circuit breaker. Input is from a nine foot cable (AWG 14/3) with a molded 5-15P plug.

Price for the Model SDC 2101 is \$475, and for the SUC 2103 is \$515.

Contact Pulizzi Engineering Inc., 3260 S. Susan St., Santa Ana, CA 92704; (714) 540-4229.

Circle 363 on reader card

#### Excellink Ships EcoNet Printer Sharing Network

Excellink Inc. shipped a new modular printer sharing network that provides printer sharing, file transfer and spooling capabilities for PC and PC-compatible computers. The EcoNet printer sharing network uses standard modular telephone cables that let users create a printer sharing network with up to 32 nodes, any of which can be computers or printers.

The EcoNet network consists of compact transmitter and receiver modules that connect directly to the parallel port of computers and printers. A transmitter module is dedicated to each computer, while a receiver module is dedicated to each printer.

EcoNet uses a 500 Kbps signal with CRC error detection to send multiple signals over the wire simultaneously. This allows users to print to several different printers simultaneously, with virtually no degradation in transmission speed.

The transmitter modules cost \$59 each and the receiver modules cost \$69 each. A starter kit, consisting of two transmitters, one receiver, two 25 foot cables, a power supply and the utility software costs \$199.

Contact Excellink Inc., 1430 Tully Rd., Ste. 415, San Jose, CA 95122; (408) 295-9000.

Circle 362 on reader card



The EcoNet starter kit includes transmitter and receiver modules.

#### Envoy Data Corp. Markets PCMCIA IC Card Designer Kit

Envoy Data Corp. released the first in a series of Designer Kits for the development of PCMCIA memory and I/O cards. This "one stop shop" contains all the necessary hardware

and information for the engineer to start his design process without a long search for product information. The kit contains hardware from PCMCIA companies like Swart, Bay Area Labels, Gould, Fujitsu, Hirose and Electrotek. Typical hardware consists of lids, frames, pcb's, cables, connectors, card extender, battery and labels.

Also included are catalogs, spec sheets, factory contracts, PCMCIA training manual, and Card and Socket Services software.

Contact Envoy Data Corp., 953 E. Juanita Ave., Ste. A, Mesa, AZ 85204; (602) 892-0954.

Circle 361 on reader card



**CIRCLE 293 ON READER CARD** 

#### **PRODUCT showcase**

## Datasys

COMPUTER CORPORATION **BUY · SELL · LEASE · TRADE** 

#### Hewlett-Packard

- SYSTEMS
- UPGRADES
- MEMORY
- PERIPHERALS

#### 1-800-DATASYS

Corporate Headquarters Dallas, Texas

(214) 931-9195 (214) 931-9691 Fax ATLANTA · BOSTON · DALLAS · OKLAHOMA CITY PHILADELPHIA · SAN FRANCISCO

CIRCLE 484 ON READER CARD

#### **HEWLETT-PACKARD**

1000 • 3000 • 9000

BUY · SELL · RENT · LEASE

**MAINTENANCE** 

PROCESSORS • PERIPHERALS • SYSTEMS

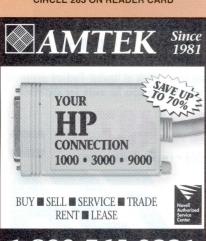
#### EURODATA INC.

(613) 745-0921

Fax: (613) 745-1172

2574 Sheffield Road, Ottawa, Canada K1B 3V7

CIRCLE 283 ON READER CARD



**1-800-765-033** Los Angeles ■ Dallas/Ft. Worth ■ Baltimore

**CIRCLE 206 ON READER CARD** 



CIRCLE 228 ON READER CARD

Get more for your money from a full service supplier with free tech support and an inventory unmatched in the industry.

- Depot repair
- Advance
- exchanges

PACKARD

apollo

digital

- · Hardware sales - Used
- Remanufactured - Custom configurations
- Crash kits Board level to & spares complete systems
- •Systems •Monitors •Drives
  - Printers Keyboards
    - Power Supplies
  - Network Products

Sales & Service Support since 1978

1.408.270.1100 International & in CA 800.726.0726 • FAX 408.270.1183 crisis@net.com.co

**CIRCLE 211 ON READER CARD** 

#### Allon Computer, Inc.

Quality, Integrity, Reliability Since 1989

Buying and Selling HP 1000/ 3000/9000 Terminals, Plotters, Disc Drives, PCs

1-800-808-0851

Fax: 813-724-6567 Direct Dail: 813-724-6566

**CIRCLE 251 ON READER CARD** 

#### **NORCO COMPUTER** SYSTEMS, INC.

Hewlett-Packard Quality at a NorCo Price

1000 • 3000 • 9000 • 250

**BUY—SELL** TRADE—LEASE

Processors, Peripherals and Systems

21337 Drake Road Cleveland, OH 44136-6620 FAX:216-572-0636 216-572-4040 1-800-892-1920

(Outside Ohio)

**CIRCLE 221 ON READER CARD** 

#### **BUY • SELL • TRADE**

#### **COMPLETE HP SYSTEMS AVAILABLE**

**ALL PERIPHERALS** 

All items in stock — immediate delivery All warranted to qualify for manufacturer's maintenance.

#### ConAm Corporation

Canada/US 800-926-6264 California 310-419-2200 FAX 310-419-2275

CDLA

#### **RENT • LEASE • MAINTENANCE**

**CIRCLE 210 ON READER CARD** 

The "HP Experts" for Over 25 Years!



Migration assistance with new HP hardware, system benchmarking, software testing, conversions, system rentals, outsourcing, and disaster recovery services.

Computer Solutions, Inc.

CIRCLE 209 ON READER CARD

#### **PRODUCT showcase**

#### **SHERLOCK**

Systems & Solutions

Sensible Solutions To The Mysteries Of Your Hardware Requirements

Solutions ... Not Just Answers

We inventory a large line of CPU'S and peripherals. MPE · MPE-XL · UNIX Buy · Sell · Trade · Lease



**CIRCLE 491 ON READER CARD** 

#### The HyPoint Advantage . . . **INVENTORY**

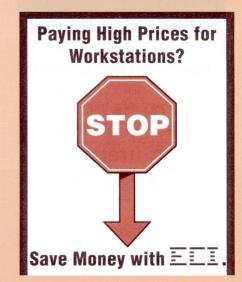
"Specializing in Full Line of HP 3000 Products"

Buy ■ Sell ■ *Trade* ■ Lease

HyPoint Technology 600 Ken Mar Drive Cleveland, OH 44147

1-800-231-5500 216-526-0323

**CIRCLE 217 ON READER CARD** 



#### HEWLETT PACKARD

#### Depot Repair

- **Expert Depot Repair**
- **5** Day Turnaround
- **Emergency Exchange Program**



1-800-837-0061

216-365-9950 Ohio 216-365-3916 FAX

CIRCLE 158 ON READER CARD

**OUALITY HP** 

DON'T UPGRADE YOUR HP SYSTEM UNTIL YOU GET A SECOND OP

FROM THE SECOND SOURCE FOR HEWLETT-PACKARD 1000-3000-9000 EQUIPMENT

sult with us about cost-saving altern

WE BUY

Complete Configurations
 Individual CPUs-Peripherals
 Upgrades and Feature Enhancelassic and Spectrum Equipment



Buy - Sell - Lease - Trade HEWLETT-PACKARD Systems, Workstations Peripherals, Solutions

Channel

(216) 835-2211

27378 W. Oviatt Bay Village, OH 44140 FAX: (216) 835-0220

**CIRCLE 272 ON READER CARD** 

Partner

#### **HEWLETT-PACKARD 9000** IT'S OUR SPECIALTY.

**PRINTERS** LaserJets DeskJets Rugged Writers

**PLOTTERS** DraftPros DraftMasters Electrostatics

DesignJet

#### WORKSTATIONS

Series 200, 300, 400, 700

We offer large discounts, outstanding service and immediate delivery. Call us before you buy a printer or plotter!



4117 2nd Avenue South Birmingham, AL 35222

(205) 591-4747 or (800) 638-4833 Fax: (205) 591-1108

**CIRCLE 233 ON READER CARD** 

Grayscale bundle, 19" monitor, 16MB RAM, one 525 internal SCSI II disk HP-UX 9.0....\$ 4,400

#### 735/CRX system

Color 2D/3D, 19" monitor, 32MB RAM and one 1GB SCSI II disk.....\$18,500

#### 755/CRX system

Color 2D/3D, 24-plane double buffered CRX graphics with accelerator and Zbuffer, 19" monitor, 64MB RAM, one 2GB SCSI II disk......CALL

800-97

7500 W. Mississippi 2nd Flr Lakewood, CO 80226 EOUIPMENT CONSULTING

CIRCLE 141 ON READER CARD

#### **DISCOUNTS TO 90%** BUY • SELL • RENT

**LEASE • TRADE** 

Unique - Special - Vintage Obsolete - Scarce - Rare Refurbished - Hard-to-Find

HP 1000 • 3000 • 9000 AND TEST EQUIPMENT

Free surface shipping! Call 509-662-9039

**ELECTRONIC** SERVICES, INC.

FAX 509-662-8271

Since 1973

**CIRCLE 212 ON READER CARD** 



**CIRCLE 205 ON READER CARD** 

#### **PRODUCT showcase**

#### **HP 3000**

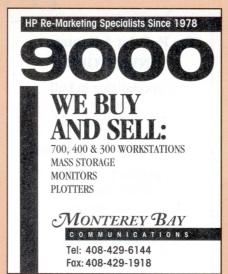
Buy — Sell — Trade Hewlett Packard Equipment

> 713-466-9455 (Fax) 713-466-9454

Surety ystems

7044 Empire Central Houston, TX 77040

**CIRCLE 226 ON READER CARD** 



CIRCLE 229 ON READER CARD



CIRCLE 215 ON READER CARD

P Professional always has articles on the latest in computing technology. I especially find the New Product section useful and the UNIX articles helpful."

Ferris Mahadeen, Chief Engineer, Aimco Technology



#### INFORMATION

Rates:

Size: 1/9 page — 23/16" x 23/4"

1time: **\$550** 

3 times: \$495

COLOR NOW AVAILABLE

6 times: \$440

12 times: \$385

- Typesetting and composition available.
  - Camera ready mechanical required.

For more information call:

Lisa Merck (708) 655-0100

#### **ADVERTISERS INDEX**

|     | Reader Service<br>Number                  |         |  |
|-----|---|---------|--|
| 104 | Adager                                    | 43      |  |
| 174 | Andersen Consulting                       |         |  |
| 242 | Artecon                                   |         |  |
| 103 | BBN Software Products                     | 19      |  |
| 105 | Bering Technology, Inc.                   |         |  |
| 171 | Black River Computers                     |         |  |
| 108 | Bradmark Technologies, Inc.               |         |  |
|     | Carolian Systems                          |         |  |
| 479 | Client Systems, Inc.                      |         |  |
| 454 | Computer Marketing International          |         |  |
| 232 | Concorde Technologies                     | 61      |  |
| 243 | CSU Industries                            | 60      |  |
| 254 | Data General                              | 17      |  |
| 265 | E-Mail                                    | 39      |  |
| 192 | FutureSoft                                | 38      |  |
| 464 | GE Rental Lease                           | 10      |  |
| 119 | Herstal Automation, Ltd.                  | 37      |  |
| 173 | Herstal Automation, Ltd.                  | 51      |  |
|     | Hewlett Packard/CSG                       | 29      |  |
|     | Hewlett Packard/CSG                       |         |  |
|     | Hewlett Packard - MA                      | INSERT  |  |
| 122 | IEM, Inc.                                 | 2       |  |
| 247 | Information Builders, Inc.                | 11      |  |
| 218 | Insignia Solutions                        | 15      |  |
| 150 | Interex                                   | 59      |  |
| 260 | Island Software                           | 55      |  |
| 270 | Kingston Technology Corp.                 |         |  |
|     | Lantronix                                 | ONSERT  |  |
| 170 | Lawson Software                           | COVER 3 |  |
| 472 | MiniSoft, Inc.                            |         |  |
| 154 | Mitchell Humphrey & Co.                   | 47      |  |
| 246 | Newport Digital Corporation               | 9       |  |
| 214 | Pericom, Inc.                             | 32      |  |
| 178 | Pure Software, Inc.                       | 26,27   |  |
| 268 | Quest Software                            | 49      |  |
| 127 | Texas ISA, Inc.                           |         |  |
| 153 | TODAY Systems                             | 57      |  |
| 477 | Tryonics Inc.                             | 35      |  |
| 137 | Technical & Scientific Applications (TSA) | 67      |  |
| 139 | Unison Software                           | 45      |  |
| 115 | Walker Richer & Quinn Inc                 | COVER 4 |  |
| 480 | Western Scientific                        | 21      |  |
| 253 | Work Station Solutions                    | 63      |  |

## ADVERTISING SALES OFFICES

**Leslie Ringe**, Publisher (215) 643-8000

#### NEW ENGLAND & EASTERN CANADA (617) 861-1994

Alonna Doucette, Regional Sales Manager 238 Bedford St., Ste. 3 Lexington, MA 02173 FAX (617) 861–7707

#### MID-ATLANTIC & SOUTHEAST (401) 351-0274

Edward Marecki, Regional Sales Manager One Richmond Square Providence, RI 02906 FAX (401) 351-0276

#### MIDWEST & SOUTH (708) 655-0100

Bettina Fischmann, Regional Sales Manager 15 Salt Creek Ln., Ste. 103 Hinsdale, IL 60521 FAX (708) 655-0755

#### NORTHERN CALIFORNIA, NORTHWEST, WESTERN CANADA (415) 873-3368

Judy Courtney, Regional Sales Manager 903 Sneath Ln., Ste. 220 San Bruno, CA 94066 FAX (415) 873-6608

#### SOUTHERN CALIFORNIA & SOUTHWEST (714) 974-0555

**Karin Altonaga**, Regional Sales Manager 446 S. Anaheim Hills Rd., Ste. 161 Anaheim Hills, CA 92807 FAX (714) 974–6853

#### INTERNATIONAL (215) 957-1500

**Leslie Ringe**, Regional Sales Manager 1300 Virginia Dr., Ste. 400 Fort Washington, PA 19034 FAX (215) 643-8099

Cheryl DeMaioribus, Marketing Services Manager James Solomon, Card Deck Manager Cathy Dodies, List Rental Manager



1300 Virginia Dr., Ste. 400 Fort Washington, PA 19034 (215) 643-8000 FAX (215) 643-8099

## Why Not RISC It?

#### Cooperative Agreement Between HP And Intel Will Be Profitable For Both



By Gordon McLachlan

In an interesting bit of news, HP and Intel recently announced that they're teaming up to design and produce a new processor chip by 1998 or thereabouts. Apparently, this is the 64-bit "post-RISC" architecture that HP has been hinting about for some time, with a slight twist — HP won't be building it.

Not surprisingly, details about the new design aren't available, presumably because the chip hasn't been designed yet. But we can't let that stand in the way of our prognostications, can we?

#### **VERY LONG SHOT?**

It is believed that the new chip will be a hybrid, backward-compatible with the Intel x86 CPU, but using something called a "very long instruction word" architecture or VLIW (whatever that is) to speed things up. While one has to assume that x86 compatibility is a given, it's unclear how compatible the design will be with HP's current PA-RISC offerings.

The biggest advantage of the chip — outside of PC compatibility — will be its suitability for use in a wide variety of applications from desktop workstations to super-servers, and a cost structure more in line with PC products than with PA-RISC.

From a business standpoint, the relationship should be a good one for both companies. For HP, the alliance has two immediate advantages: It can develop the new chip for a lot less than it would cost to do it alone; and Intel's manufacturing capacity will provide economies of scale that HP can't touch on its own.

Intel benefits because it doesn't have to worry about the x86 instruction set going away. Intel is concerned about IBM's defection from their camp—developing the PowerPC with Apple and Motorola, and manufacturing Intel clone chips for Cirrus Logic, Cyrix and NexGen—and it needs to take a new product direction to get out of the rut it's perceived to be in.

Without a doubt, Intel got lucky when IBM picked the Intel 8086 CPU for its first PC a dozen years ago, but that luck has now kept Intel from doing anything bold with the x86 microprocessor family. As a result, Intel is continually plagued by

accusations that its chips are "old" and has been flayed by technoids touting the advantages of one RISC design or another over the x86. A clever new chip should help silence those critics.

#### LIFE AFTER P7

Inevitably, the alliance invites comparisons to the IBM, Apple and Motorola PowerPC partnership, but considering the new chip isn't expected to hit the market for 28 dog-years, it's hard to characterize it as a PowerPC killer. Still, it shows there may be life after P7 and PA-RISC, and therefore forestall erosion of both markets.

Although they are quite capable of designing and building the hardware on their own, Intel will have to sink a lot of effort into developing compilers and other software to make things work. Here too, it makes a lot of sense to split the difference in a joint venture, and HP's stature as the number two computer manufacturer gives the alliance the credibility it needs to make the cut.

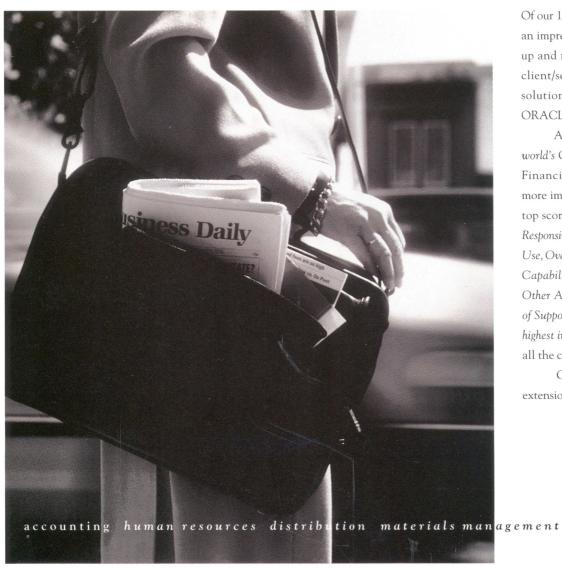
Thinking longterm, HP can be reasonably certain that it isn't making a big goof on its next generation processor. If nothing else, HP knows that an Intel-compatible chip will be able to run industry-standard as well as HP-UX software, and they won't have to worry about porting it on their own. Given HP's troubles with LAN Manager, Portable NetWare, "native" NetWare and its waffling on Windows NT, this alone should make some people in HP management happy.

In effect, this alliance will take HP out of the hardware game. These days, the real money for HP is in all the "value-added" stuff they're pitching — chips, software and services. The hardware is little more than assembled kits of standardized components, and the assembly doesn't have enough of a profit margin. So more and more vendors sell hardware so they can sell software. One day soon, don't be surprised to get hardware bundled free with the software you buy.

—McLachlan's Internet address: mclachlan@cardinal.com

## "top scores in six areas"

Computerworld Buyers' Satisfaction Scorecard



Of our 1900 clients worldwide, an impressive number are now up and running with Lawson client/server open enterprise solutions. On SYBASE,® ORACLE® and INFORMIX®

According to Computerworld's Guide to Client/Server Financial Software, an even more impressive number give us top scores in all six categories: Responsiveness of Service, Ease of Use, Overall Reliability, Reporting Capabilities, Interfacing with Other Applications and Quality of Support. In fact, Lawson was highest in overall satisfaction of all the companies surveyed.

Call us at 1-800-477-1357 extension 835, and find out why.



©1994 Lawson Software, SYBASE, ORACLE and INFORMIX are registered trademarks of their respective owners

Introducing

# TCP/IP for MINIONS

## Done right by Reflection.

Announcing the Reflection Network Series® for Windows—the first TCP/IP for Windows developed specifically for corporate networks. Designed from the ground up for performance, reliability, and ease of use.

- Powerful network management—
   An extensive set of diagnostic and monitoring tools, including SNMP MIB II, makes network management easier than ever before.
- True open connectivity—100% Windows Sockets compatibility lets you run industry-wide applications. Plus, Reflection® gives you sophisticated applications and transports like drag-and-drop FTP, LPR/LPD, NS/VT and LAT.
- Optimal performance and reliability— Reflection's advanced cooperative VxD/DLL design delivers superb performance and ensures data integrity.

Call today. Reflection means business. It's TCP/IP done right.

Try the Reflection Network Series free for 30 days!

Call 800-92-NETWORK In Europe, call +31.70.375.11.00 Outside Europe, call 206.217.7100

